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Banana trees are one of the common trees of the garden. They grow both wide and long. They are quite hard to maintain as their roots grow deeper which consume lots of water and nutrients and that affect other nearby plants to survive. Banana trees have a single intertwined mat system that does not grow in a central axial direction but rather spreads suckers from a fibrous root system. The roots grow 5-15 feet deeper both straight and horizontally, so they need bigger space to spread but they're not invasive as they're flexible. Many factors influence the invasiveness of banana roots; some are invasive, such as wild banana roots that seek nourishment and water in hot climates, while others do not cause any harm but produce delicate suckers. Some banana roots can reach five feet into the soil, while others can reach five feet in the right conditions. However, because banana roots have rhizome roots with fibrous systems, they tend to spread horizontally. They are not powerful enough to penetrate houses or pipes; therefore, they are regarded as safe, but they should have a minimal amount of room to develop due to their fibrous root system, which spreads quickly. The roots of this tree develop quickly and spread far, but they are not very powerful, so they usually do not cause damage to houses or pipelines. However, if there isn't enough distance between the trees, the trees nearby may be affected. This is a little banana tree kind with delicate roots that can't easily penetrate neighboring structures, so the roots do not invade. In comparison to other banana roots, wild banana roots are invasive, so they should not be planted near plants or structures. The roots are strong by nature since they must withstand the summer drought. They are a different type of banana tree with a large root system that stays close to each other and does not have invasive roots. They normally stay close to the soil. Banana trees normally grow 15-18 feet. Some can even grow more than 30 feet if the soil is fertile and they get enough nutrients. As they grow taller and taller, they need bigger and deeper roots. That's why their roots require more nutrients, rich soil and water than others to survive. Moreover, banana trees don't have a central axis root; rather small branches that reach much deeper both straight and horizontally. So, while digging a hole, make sure it is both deep and wide so that they can easily spread out. Banana trees can grow up to 30 feet tall. As banana trees grow much longer, they require deep roots to ensure their nutrients and foods reach the top. Their roots are known as fibrous roots and can expand horizontally by forming many side branches for nutrition. The root usually grows 5 feet deep but in rich soil the roots can reach up to 15-20 feet deeper. They need enough space to spread out freely else, their growth can be hampered. However, while planting banana trees, a minimum of 1 feet deep and wide hole will be sufficient for them to spread and expand. Banana plants begin with a single stem and subsequently sprout branches from the nodes of the stalk. Because banana trees are monocots, they have adventitious roots known as fibrous roots, and because banana trees are one of them, their root systems are fibrous as well. The banana tree's root system is integrated, or mat-like, with suckers or branches to replace drying roots and obtain water and nutrients. The banana tree's fibrous root structure is known for branching profusely and spreading in all directions in search of nutrients and water. They clump together to form a root mass. The banana tree has a rhizome root system, which is a modified creeping root system. These plants start out with a single rhizome or stem, but after a period of subsequent growth, the roots sprout branches and suckers, forming a fibrous root system. Bananas' root systems are like those of a monocot variety of trees. Monocots have roots that are either fibrous mat systems or integrated root systems. The tree is known as a plantain because of its fibrous root system that stays close together. These banana roots produce a network of thin roots that span a large area. Banana trees do not have a central axis of root. Instead, they have a fibrous root system, which means they have small branches rather than a single axial root. This branch extends horizontally and creates suckers, which serve to grow new roots in lieu of the dried ones. It distributes branches from the nodes of the root stem in a single rhizome shape. Banana roots have a single rhizome that has been modified to allow them to reach further distances in order to draw water and nutrients. Along with rhizomes, the underground stem generates virulent roots that can extend up to 16 feet. Banana plants have a distinct root system because their roots reach up to five feet into the earth and require more nutrients. Banana roots are delicate in nature; they aren't considered to have invasive roots, but they can expand horizontally by forming many side branches for nutrition. They do not harm other plants; rather, their root systems aid in the replacement of dried roots and the production of new roots. Their roots may usually spread up to 10 feet into the ground, and their suckers can expand ten to fifteen feet sideways, although the roots are soft and do not harm pipelines or other trees. However, if they do not have the necessary habitat to spread, their roots may find any method to spread in order to survive, generating invasiveness in the soil. Banana trees are a big growing tree that usually grow 15 feet to 30 feet tall. They require deep roots to ensure their body's needs. So, the roots of banana trees expand up to 15 feet deep depending on the growth of the branches. Though their roots reach so deep, they do not damage foundation or pipes as their roots divide into small branches and they are soft, delicate and much flexible in nature. So, they are not capable enough to harm the foundation or pipe like other deep root trees. But as they have deep, fibrous roots, they can suck lots of water from soil and also affect other nearby plants. Banana trees are large plants that require much space to spread freely or their growth may hamper. Usually, their roots grow 5 feet to 10 feet but in rich soil their roots can reach up to 15 feet which is really deep. So, keeping the growth in their mind, plant the banana tree so they can grow easily. You need to plant the tree minimum in a 15 gallon space, so its roots can expand. When digging it in the soil, 1 feet width and minimum 30cm depth will be sufficient to grow but when they'll be mature enough, they will need more space like 8-12 feet. Banana trees actually spread as they grow from the rhizomes that are known as the underground stems that initiate the buds of a banana tree and these small plants are known as the suckers. With suckers or branches, the banana tree's root system is integrated to replace drying roots and obtain water and nutrients. Also, from the pups or the suckers they are able to become separate from the adult tree and grow separately. Moreover, it's the rhizomes that help to produce fruit by nurturing the stems. As banana trees are big and large growing trees, their roots also grow bigger and deeper than the other trees. By seeing only the body of the banana tree, it's difficult to assume how big their tree roots can be. Their roots are fibrous roots and they even divide into small branches and expand much deeper in the soil. Their roots gradually grow from 1 feet to usually 5 feet or 10 feet but however, in their optimal atmosphere their roots can even be 15 feet big. The roots of a banana tree sprout from branches and suckers, forming a fibrous root system. They don't have a central axis root; rather small branches that can reach up to 15 feet. However, the roots are delicate and won't hurt the foundation but they should have a minimum amount of space to grow. Bananas are so well-adapted in Brazil that many Brazilians think the fruit has its origins in the Americas. Brazilian farmers produce around 6.5 to 7.5 million tons of bananas every year.A study carried out by the Brazilian Agricultural Research Company (EMBRAPA) revealed that Brazilians consume around 25 kg/year of bananas. "Bananas are very democratic. They are grown all year long, they are consumed by all genders and classes, they are affordable, they are tasty and also easy to eat," says Jorge de Souza, manager at the Brazilian Association of Fruit and Derivative Exporters (Abrafrutas), who has been a banana grower for 15 years.Cavendish x Prata Unlike most countries where over 90% of the banana market is supplied by the Cavendish subgroup, Brazil has a larger variety of bananas. Nowadays, Cavendish represents 60% of the internal production; Prata, 31%; Plantains, 7.5%; and Apple-Banana, 1.5%."Commercially Cavendish and Prata bananas are the most profitable ones. Private collectors grow other types, but this production is inexpressive for the market," explains him.From Brazil Banana is a crop that grows best in well-drained soils, with good water availability. "That's why production is distributed throughout the country's territory", explains Letícia Fonseca, a fruit growing technician at the Brazilian Confederation of Agriculture and Livestock (CNA). "The expansion seen in recent years happened mainly in regions with irrigation projects, such as Vale do Jaíba and Vale do São Francisco", adds Letícia. Tropical Nordeste/divulgaçãoNinety-five (95%) of the Brazilian production is consumed internally. However, there are companies specialized in exporting the product. In this business for over 20 years, Edson Brok, director of Tropical Nordeste and Brok Fresh, sells virtually all his production abroad. "We have all the certification needed, skilled labor, investments, and know-how to control every step until delivery," tells Brok.From his farm in Limoeiro do Norte, Ceará, in the Northeast of Brazil, around one million boxes of bananas are shipped to Europe every year, mainly to the United Kingdom."Brazilian bananas pay a higher tax in the European Union than bananas from other Latin and Central American countries. This fact makes competitiveness a challenge. However, our main buyers are there," explains him.The US, Germany, France, Italy, and Paraguay are among Brazil's main importers. "Over the last year or so, during the pandemic, our sales to Argentina and Uruguay have increased. Hopefully, it will keep this way," says Jorge de Souza. Tropical Nordeste/divulgaçãoCuriosities– According to the Food and Agriculture Organization of the United Nations (FAO), there are more than one thousand varieties of bananas produced and consumed locally in the world. – The most commercialized is the Cavendish banana subgroup, which accounts for almost 50% of all global production. India is the largest producer of bananas, followed by China, Indonesia, and Brazil. – The world production of bananas is expected to grow 1.5% per year, reaching 135 million tons in 2028 (FAO). – Bananas are one of the most consumed and cheapest fruits worldwide: they are the most traded fruit and the fifth most traded agricultural product. – The banana fruit has its origins in Southeast Asia. They began to be traded internationally by the end of the fourteenth century. Do banana trees spread? Do you like this article? Banana trees, also known as banana plants or Musa species, are famous for their large, vibrant leaves and delicious fruit. They are widely grown in tropical and subtropical regions around the world. When it comes to their spreading behavior, the answer is a resounding yes—banana trees do indeed spread. **Banana trees spread mainly through underground rhizomes**, which are horizontal stems that grow just below the surface of the soil. These rhizomes can extend several meters from the parent plant, allowing the banana tree to reproduce and grow new shoots. As a result, banana trees can form large clumps or "mats" over time, covering a considerable area. 1. How fast do banana trees spread? Banana trees can spread fairly quickly, especially under favorable conditions. They have been known to cover several meters within just a few months. 2. Are banana tree roots invasive? While banana tree roots can be quite extensive, they are not considered highly invasive. However, they can be quite resilient and hard to remove once established. 3. Can banana trees spread in colder climates? Banana trees are tropical plants and thrive in warm climates. While they can grow in some subtropical regions, their spreading tendencies are significantly limited in colder climates. 4. Are there any types of banana trees that don't spread? There are dwarf varieties of banana trees, such as the Cavendish banana, that have a smaller spread and are typically more suitable for home gardens. 5. Can banana trees spread via seeds? While banana trees produce seeds, they are not the primary means of propagation. Most cultivated banana trees are sterile or have nonviable seeds and primarily rely on rhizomes for spreading. 6. How can I control the spread of banana trees in my garden? To control the spread of banana trees, you can regularly remove any unwanted shoots or rhizomes that emerge beyond the desired area. Additionally, trimming the leaves and maintaining a clear border around the plant can help restrict its expansion. 7. Do banana trees spread indefinitely? If left unchecked, banana trees can continue to spread indefinitely as long as the growing conditions remain favorable. 8. Can I propagate banana trees by dividing the rhizomes? Yes, dividing the rhizomes of a mature banana tree can be an effective method of propagation. Simply separate the healthy rhizomes and replant them to create new banana plants. 9. Do banana trees spread above ground? While most banana tree spreading occurs underground through rhizomes, new shoots can also emerge above ground from the base of the plant, especially if the rhizomes have been damaged or disrupted. 10. Can I grow banana trees in containers to limit their spreading? Yes, growing banana trees in containers can help control their spreading tendencies. However, it is essential to choose compact or dwarf varieties that are more suitable for container gardening. 11. Can I eat the shoot sprouts that emerge from banana tree rhizomes? Yes, the shoot sprouts that emerge from banana tree rhizomes, commonly known as "banana hearts" or "banana blossoms," are edible and considered a delicacy in many cuisines. 12. Is it necessary to control the spreading of banana trees? Controlling the spread of banana trees is recommended in most cases, particularly in gardens or confined spaces where their rapid growth and extensive leaves can overshadow smaller plants. Additionally, it can help prevent overcrowding and maintain a well-maintained garden or landscape. Watch this awesome video to spice up your cooking! Your friends have asked us these questions - Check out the answers! Banana trees can be a beautiful addition to any garden, but their rapid spread can quickly become overwhelming. Understanding the basics of banana trees and why they spread is key to preventing further growth. In this article, we will explore how to identify when your banana tree is spreading and the different methods you can use to stop its growth. It's important to remember that proper maintenance plays a significant role in preventing the spread of banana trees. If you're looking to learn more about these topics, read on to discover how you can put an end to the spread of banana trees.The basics of banana trees and why they spread.Banana trees, also known as Musa spp., are a herbaceous plant that belongs to the family of Musaceae. These trees are known for their large leaves and long, curved fruits. But why do banana trees spread so easily?The answer lies in their unique growth pattern. Banana trees grow from a central underground rhizome that sends out shoots or suckers. These suckers can develop into new banana plants, creating a clump of trees that share the same root system. This spreading behavior has some advantages for banana farmers. For example, if one tree in a clump is infected with disease or pests, it can be removed without affecting the entire plantation. Additionally, the close proximity of these plants allows for easier harvesting and maintenance.However, this same behavior can also lead to problems if not managed properly. Overcrowding can occur which reduces fruit quality and increases susceptibility to disease and pests.In conclusion, understanding the basics of how banana trees grow and spread is essential for farmers looking to optimize their production while minimizing risk factors such as disease outbreaks or pest infestations. With proper management techniques in place, banana plantations can continue to thrive and provide nutritious fruits for people around the world to enjoy!How to identify when your banana tree is thriving.Banana trees are a tropical fruit tree that can be found growing in many different regions around the world. However, it's important to know when your banana tree is spreading so you can take proper care of it and ensure its continued growth.One way to identify when your banana tree is spreading is by looking at the size and shape of its leaves. As the plant grows, its leaves will become larger and more pronounced, allowing you to easily spot any changes or growth spurts.Another way to tell if your banana tree is spreading is by examining the roots. If you notice that the roots are starting to grow outwards or appear thicker than before, this could indicate that the plant is expanding and taking up more space in its environment.It's also important to keep an eye on any new shoots or stems that may be growing from the base of your banana tree. These shoots can eventually develop into new plants if left unchecked, potentially leading to overcrowding and stunted growth for all involved.By being mindful of these signs and taking appropriate action when necessary, you can ensure that your banana tree continues to thrive and produce delicious fruit for years to come.The different ways to stop the spread of banana trees are.Banana trees are a staple crop in many parts of the world, but they are also susceptible to disease and pests that can quickly spread and devastate entire plantations. It is therefore essential for banana growers to take proactive measures to prevent the spread of these threats.One effective way to stop the spread of banana tree diseases is through good hygiene practices. This means regularly cleaning tools, equipment, and hands with disinfectants or soaps that kill harmful bacteria or viruses. In addition, farmers should avoid walking on their crops with dirty shoes or clothing that may carry pathogens from other farms. Another important method for preventing the spread of diseases is through proper pruning techniques. By removing infected leaves or branches as soon as they appear, farmers can prevent the disease from spreading further into healthy parts of the tree.In addition to hygiene and pruning practices, farmers can also use biological control methods such as introducing beneficial insects like ladybugs or using natural predators like predatory mites to keep pest populations in check.Finally, it is vital for banana growers to be aware of any potential threats in their area and take action immediately if an outbreak occurs. This may involve quarantining infected plants or even destroying them entirely if necessary.In conclusion, stopping the spread of banana tree diseases requires a combination of good hygiene practices, proper pruning techniques, biological control methods, and prompt action when outbreaks occur. By implementing these strategies consistently across all farms worldwide we can ensure a stable supply chain while minimizing environmental impacts caused by overuse pesticides concurrently protecting our health by ensuring food safety standards are met at all times!The importance of proper maintenance to prevent the spread of banana trees is paramount.Proper maintenance is crucial when it comes to preventing the spread of disease in banana trees. These plants are susceptible to a wide range of diseases, many of which can be devastating if left unchecked.One common problem that can arise is the spread of Fusarium wilt. This fungal disease attacks the roots and stems of the tree, causing them to rot and eventually die. If left untreated, it can quickly spread throughout an entire plantation and destroy all the trees. To prevent this from happening, it's important to practice good hygiene in your banana plantation. This means regularly cleaning equipment and tools that come into contact with your plants, as well as removing any infected plants immediately.Another key factor in preventing disease spread is proper soil management. Bananas thrive in rich soil with good drainage, so make sure you're using quality compost or fertilizer and avoid over-watering your trees.Finally, consider using biological control methods such as introducing beneficial insects or microbes that can help keep harmful pathogens at bay.By taking these steps to properly maintain your banana trees, you'll not only ensure their health but also contribute to a more sustainable agricultural industry overall. So don't skimp on maintenance – invest in healthy bananas for a healthier planet!Check out our other articles to find out even more about banana.The spread of banana trees can be a problem for many people and proper maintenance is essential to prevent it. Knowing the basics, how to identify when your banana tree is spreading, and different ways to stop its spread will help you stay ahead of any potential issues. If you're looking for more information on this topic or other related topics regarding bananas, make sure to check out our other articles! Banana trees are one of more than 80 species of flowering plants in the Musa genus. Bananas are huge herbaceous plants with fleshy, upright stalks from which large, oblong, bright green leaves grow. Showy flowers appear typically in the spring, giving way to fleshy, elongated, green or yellow fruit. No matter the size of your yard or home, there is a type of edible or ornamental banana plant that fits. Bananas also make good houseplants provided they get sufficient light, though they rarely flower or bear fruit indoors. They are generally fast-growing and as garden plants are planted in the spring. Credit: The Spruce / Phoebe Cheong Common Names Banana tree, plantain tree Botanical Name Musa spp. Family Musaceae Plant Type Perennial, herbaceous Mature Size 2–30 ft. tall, 1–15 ft. wide Sun Exposure Full Soil Type Loamy, well-drained Soil pH Acidic Bloom Time Spring Hardiness Zones 9–11 (USDA) Native Area Asia, Africa, Australia Where to Put It: If you're planting your banana tree outdoors, choose a location with full sun to partial shade. If you're planting your tree indoors, choose a spot near a south- or west-facing window for maximum sun exposure.How to Water It: Banana trees need to be watered frequently, so make sure to water regularly so the soil stays evenly moist but not soggy.Soil Type: Choose a soil that's loamy and well-drained. While banana species vary greatly in appearance and size, the main care requirements are very similar: If planting outdoors, select a location in full sun to partial shade (depending on the variety) and sheltered from strong winds, as the leaves are susceptible to damage.Prepare your planting site by mixing some fresh compost into the soil.Make sure you have enough space for the height and spread of your particular species.Maintain adequate soil moisture by watering daily if necessary, especially during hot weather.Apply fertilizer monthly throughout the growing season.If growing edible bananas harvest the clusters (hands) in the late summer when the fruit is green and plumped up. Cut it off the stalk and place it in a cool, dry space to finish ripening. Credit: The Spruce / Phoebe Cheong Credit: The Spruce / Phoebe Cheong Credit: The Spruce / Phoebe Cheong Most types of banana plants prefer to grow in full sun, meaning at least six hours of direct sunlight on most days. However, the leaves of some varieties scorch easily and the plant will do better in partial shade. Indoors, place them near a south- or west-facing window for maximum sun exposure. Are the leaves on your banana tree splitting? While some splitting can be normal, a lot of splitting is a sign that your banana tree isn't getting enough humidity. Consider placing some trays full of water around your plant, or invest in a plant humidifier to keep it happy and healthy. These plants love organically rich, deep soil with good drainage and a slightly acidic soil pH between 5.0 and 6.5. They typically have a poor tolerance for salt in the soil. Banana trees are tropical rainforest plants that need a lot of water and plenty of moisture in the air. Water regularly to make sure the soil stays evenly moist without getting soggy. Avoid overwatering, which can cause root rot. Banana plants do best when planted in groups fairly close together, as this helps to retain moisture in the leaves. These plants thrive in warm, humid conditions. Try to keep temperatures consistently between 75°F and 95°F as they don't like temperature extremes. Temperatures below 60°F slow down growth, and frost causes the plants to die back to the ground. Banana plants thrive in high humidity. To increase the level of humidity, place a plant (or regular) humidifier nearby. Banana trees are heavy feeders. Apply a complete fertilizer such as 8-10-8 monthly throughout the growing season, following label instructions. Spread the fertilizer evenly around the plant, making sure that no fertilizer touches the base. Also, mix compost into the soil every year in the spring to increase the level of organic matter. Fertilize potted banana plants monthly with a fertilizer diluted to half-strength. There are roughly 70 species and even more varieties of banana trees, including: Musa acuminata: This species reaches around 12 to 20 feet tall and is often grown for its ornamental foliage. Its paddle-shaped leaves grow 6 to 10 inches long. A popular variety for indoor growing is the self-pollinating 'Dwarf Cavendish'.Musa ornata: Commonly referred to as the flowering banana tree, this species is mostly grown for its ornamental value.Musa basjoo: Known as the Japanese banana, this species has fairly good cold tolerance. It grows 6 to 14 feet tall. If growing a banana for its fruit, before the banana tree fruits, prune it so there is only one main stem. After it has been growing for six to eight months, leave one sucker (small shoot at the base of the stem). This plant will replace the main stem in the next growing season. After the fruit is removed, cut the main stem down to 2.5 feet. Remove the rest of the stem after a few weeks, leaving the replacement sucker intact. Looking for the best pruners for your banana trees? We tested 10 top-rated pruners in our Lab to make sure your plants stay happy and healthy. The best method of propagating banana trees is by division. Wait until the suckers are at least 12 inches tall and have developed their own roots. Separate the suckers from the rhizome using a sharp spade.Let the surface of the cut rhizome dry for about a day.Replant it in a suitable location or a pot at the same depth as the original plant. Water it immediately and keep it moist. If your banana tree lives outside, potting it allows you to bring it indoors to shelter it from cold weather and overwinter it indoors. Banana trees need at least a 15-gallon container for optimal growth. Ensure that the pot has large drainage holes, and use a loose, organically rich potting mix. Potted banana trees have higher watering and feeding needs, as they will use up what is in their limited soil faster than banana trees in the ground. In addition, they likely won't reach their maximum size and might not bear fruit. Still, many people grow them for their foliage. You typically will need to divide and repot container banana trees every three years, separating any suckers from the parent plant. Owners of banana trees need to stay vigilant of the many pests and diseases that afflict a banana tree. In banana plantations, they are frequently treated with commercial fungicides and pesticides. Potential pests you might find on your outdoor banana plants include: Aphids cause curled and shriveled foliage. They also transmit other diseases that affect the fruit production. Black banana weevils are one of the most serious banana pests. A sign of these nocturnal root borers is jelly-like sap oozing from the plant. Nematodes feed inside the roots, causing the plant and fruit to rot. Mealybugs and red spider mites sap the suck from the plant. Scarring beetles cause spotting or severe scarring of the fruit skin and young leaves. Thrips stain and split the peel of the plant's fruit. As for indoor potted banana trees, be on the lookout for root rot, leaf-spot disease, wilt, and powdery mildew. Look out for mealybugs which will look like small, white, and fuzzy globs on the plant's stems and leaves. To remove them, spray some insecticidal soap on all the plant parts and repeat this process biweekly or weekly until the infestation is gone. FAQ Banana trees are easy to grow if they have optimal conditions (indoors or outdoors). Give your banana tree lots of water, light, and fertilizer. Hybrid bananas are self-pollinating (parthenocarpic) so they don't need pollinators to bear fruit. Wild bananas, on the other hand, need to be pollinated by fruit bats. In the right conditions outdoors, a banana tree may bear fruit in 15 to 18 months after planting. After the banana has flowered and produced fruit, it dies back to the ground and another banana plant sprouts from the same roots. Though you might find a few tiny "seeds" in a banana you buy from the grocery store, you can't grow a banana from those seeds. The commercially sold bananas are genetically altered so they do not produce seeds. If you find wild bananas with seeds, you might try growing a tree from those. Banana trees are tropical plants, so they grow best in sunny, hot, humid climates. If indoors, keep a humidifier nearby, temperatures higher than 75°F where possible, and in an area with lots of sun like next to a south- or west-facing window. Enjoy sharper detail, more accurate color, lifelike lighting, believable backgrounds, and more with our new model update. Your generated images will be more polished than ever.See What's NewExplore how consumers want to see climate stories told today, and what that means for your visuals.Download Our Latest VisualGPS ReportData-backed trends. Generative AI demos. Answers to your usage rights questions. 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Our original video podcast covers it all—now on demand.Watch Now FAO supports governments and partners to design the right policies and programmes to end hunger, promote food security and promote sustainable agriculture for millions of people around the world. A world free from hunger and malnutrition where food and agriculture contributes to improving the living standards of all FAO works with governments and partners to empower some of the world's most marginalized people to end rural poverty. FAO helps ensure food security by developing ways of growing food that will work in the future so that millions of people don't go hungry. Good health starts with nutrition. FAO sets global standards and works with governments and the private sector to ensure food quality and safety throughout the food chain. FAO invests in educational systems for rural communities and supports improved access to primary education and school meals in order to create equal opportunities for all and chances of lifelong learning. FAO supports gender equality in the agricultural sector in an effort to raise levels of nutrition in local communities and improve agricultural productivity. FAO works with governments to ensure water use in agriculture is made more efficient, equitable and environmentally friendly. FAO promotes the use of renewable energies and works to ensure access to modern energy services across the food chain. FAO seeks better economic opportunities for all by investing in sustainable agricultural practices and food systems that reduce inequalities and create decent jobs. FAO seeks to secure a future for rural communities via investments in transportation, irrigation, food storage facilities and communication technologies. FAO works with countries and partners to generate employment in rural areas, ensure access to natural resources for the most vulnerable and connect farmers to markets. FAO works to improve urban healthcare, water quality and rethink city region food systems to help deter the negative effects of sprawling urbanisation. FAO coordinates major global initiatives and projects to tackle food waste and loss, partnering with international organisations, the private sector and civil society. FAO supports countries in responding to the threats of climate change by providing advice, data and tools for better agricultural policies and practices. FAO, in partnership with governments and fishing communities, implements best practices in fisheries to ensure our oceans are protected as a means of livelihoods. FAO promotes sustainable approaches to natural resource management and supports endeavours that promote a balance between conservation and development initiatives. FAO plays a critical role in peacebuilding, restoring rural livelihoods, building resilience and participatory approaches to policymaking. FAO acts as a neutral policymaking forum and develops partnerships with all concerned with food and agriculture to ensure a world free from hunger. Tropical, edible, staple fruit For other uses, see Banana (disambiguation). BananaFruits of four different cultivars. Left to right: plantain, red banana, apple banana, and Cavendish bananaSource plant(s)MusaPart(s) of plantFruitUsesFood A banana is an elongated, edible fruit—botanically a berry[1]—produced by several kinds of large treelike herbaceous flowering plants in the genus Musa. In some countries, cooking bananas are called plantains, distinguishing them from dessert bananas. The fruit is variable in size, color and firmness, but is usually elongated and curved, with soft flesh rich in starch covered with a peel, which may have a variety of colors when ripe. It grows upward in clusters near the top of the plant. Almost all modern edible seedless (parthenocarp) cultivated bananas come from two wild species – Musa acuminata and Musa balbisiana, or hybrids of them. Musa species are native to tropical Indomalaya and Australia; they were probably domesticated in New Guinea. They are grown in 135 countries, primarily for their fruit, and to a lesser extent to make banana paper and textiles, while some are grown as ornamental plants. The world's largest producers of bananas in 2022 were India and China, which together accounted for approximately 26% of total production. Bananas are eaten raw or cooked in recipes varying from curries to banana chips, fritters, fruit preserves, or simply baked or steamed. Worldwide, there is no sharp distinction between dessert "bananas" and cooking "plantains": this distinction works well enough in the Americas and Europe, but it breaks down in Southeast Asia where many more kinds of bananas are grown and eaten. The term "banana" is applied also to other members of the genus Musa, such as the scarlet banana (Musa coccinea), the pink banana (Musa velutina), and the Fe'i bananas. Members of the genus Ensete, such as the snow banana (Ensete glaucum) and the economically important false banana (Ensete ventricosum) of Africa are sometimes included. Both genera are in the banana family, Musaceae. Banana plantations are subject to damage by parasitic nematodes and insect pests, and to fungal and bacterial diseases, one of the most serious being Panama disease which is caused by a Fusarium fungus. This and black sigatoka threaten the production of Cavendish bananas, the main kind eaten in the Western world, which is a triploid Musa acuminata. Plant breeders are seeking new varieties, but these are difficult to breed given that commercial varieties are seedless. To enable future breeding, banana germplasm is conserved in multiple gene banks around the world. The banana plant is the largest herbaceous flowering plant.[2] All the above-ground parts of a banana plant grow from a structure called a corm.[3] Plants are normally tall and fairly sturdy with a treelike appearance, but what appears to be a trunk is actually a pseudostem composed of multiple leaf-stalks (petioles). Bananas grow in a wide variety of soils, as long as it is at least 60 centimetres (2.0 ft) deep, has good drainage and is not compacted.[4] They are fast-growing plants, with a growth rate of up to 1.6 metres (5.2 ft) per day.[5] The leaves of banana plants are composed of a stalk (petiole) and a blade (lamina). The base of the petiole widens to form a sheath; the tightly packed sheaths make up the pseudostem, which is all that supports the plant. The edges of the sheath meet when it is first produced, making it tubular. As new growth occurs in the centre of the pseudostem, the edges are forced apart.[3] Cultivated banana plants vary in height depending on the variety and growing conditions. Most are around 5 m (16 ft) tall, with a range from 'Dwarf Cavendish' plants at around 3 m (10 ft) to 'Gros Michel' at 7 m (23 ft) or more.[6][7] Leaves are spirally arranged and may grow 2.7 metres (8.9 ft) long and 60 cm (2.0 ft) wide.[1] When a banana plant is mature, the corm stops producing new leaves and begins to form a flower spike or inflorescence. A stem develops which grows up inside the pseudostem, carrying the immature inflorescence until eventually it emerges at the top.[3] Each pseudostem normally produces a single inflorescence, also known as the "banana heart". After fruiting, the pseudostem dies, but offshoots will normally have developed from the base, so that the plant as a whole is perennial.[8] The inflorescence contains many petal-like bracts between rows of flowers. The female flowers (which can develop into fruit) appear in rows further up the stem (closer to the leaves) from the rows of male flowers. The ovary is inferior, meaning that the tiny petals and other flower parts appear at the tip of the ovary.[9] The banana fruits develop from the banana heart, in a large hanging cluster called a bunch, made up of around nine tiers called hands, with up to 20 fruits to a hand. A bunch can weigh 22–65 kilograms (49–143 lb).[10] The stalk ends of the fruits connect up to the rachis part of the inflorescence. Opposite the stalk end, is the blossom end, where the remnants of the flower deviate the texture from the rest of the flesh inside the peel. The fruit has been described as a "leathery berry".[11] There is a protective outer layer (a peel or skin) with numerous long, thin strings (Vascular bundles), which run lengthwise between the skin and the edible inner white flesh. The peel is less palatable and usually discarded after peeling the fruit, optimally done from the blossom end, but often started from the stalk end. The inner part of the common yellow dessert variety can be split lengthwise into three sections that correspond to the inner portions of the three carpels by manually deforming the unopened fruit.[12] In cultivated varieties, fertile seeds are usually absent.[13][14] A corm, about 25 cm (10 in) across Young plant Female flowers have petals at the tip of the ovary 'Tree' showing fruit and inflorescence Single row planting Inflorescence, partially opened A 2011 phylogenomic analysis using nuclear genes indicates the phylogeny of some representatives of the Musaceae family. Major edible kinds of banana are shown in boldface.[15] Musaceae Musa Clade I Musa acuminata ssp. burmannica, Banana‡, S. India to Cambodia Musa ornata, Flowering banana of Southeast Asia Musa acuminata ssp. zebrina, Blood banana of Sumatra Musa mannii, a wild banana of Arunachal Pradesh, India Musa balbisiana, Plantain of South, East, and Southeast Asia Clade II Musa x troglodytarum, Fe'i banana of French Polynesia Musa maclayi of Papua New Guinea and Solomon Islands Musa textilis, Abacá or Manila hemp of the Philippines Musa beccarii, a wild banana of Sabah Musa coccinea, Scarlet banana of China and Vietnam Musella lasiocarpa, Golden lotus banana of China Ensete ventricosum, Enset or false banana of Africa ‡ Many cultivated bananas are hybrids of M. acuminata x M. balbisiana (not shown in tree).[16] Work by Li and colleagues in 2024 identifies three subspecies of M. acuminata, namely sspp. banksii, malaccensis, and zebrina, as contributing substantially to the Ban, Dh, and Ze subgenomes of triploid cultivated bananas respectively.[17] Further information: List of banana cultivars Musa 'Nendran' cultivar, grown widely in the Indian state of Kerala The genus Musa was created by Carl Linnaeus in 1753.[18] The name may be derived from Antonius Musa, physician to the Emperor Augustus, or Linnaeus may have adapted the Arabic word for banana, mauz.[19] The ultimate origin of musa may be in the Trans–New Guinea languages, which have words similar to "#muku"; from there the name was borrowed into the Austronesian languages and across Asia, accompanying the cultivation of the banana as it was brought to new areas, via the Dravidian languages of India, into Arabic as a Wanderwort.[20] The word "banana" is thought to be of West African origin, possibly from the Wolof word banaana, and passed into English via Spanish or Portuguese.[21] Musa is the type genus in the family Musaceae. The APG III system assigns Musaceae to the order Zingiberales, part of the commelinid clade of the monocotyledonous flowering plants. Some 70 species of Musa were recognized by the World Checklist of Selected Plant Families as of January 2013[update];[18] several produce edible fruit, while others are cultivated as ornamentals.[22] The classification of cultivated bananas has long been a problematic issue for taxonomists. Linnaeus originally placed bananas into two species based only on their uses as food: Musa sapientum for dessert bananas and Musa paradisiaca for plantains. More species names were added, but this approach proved to be inadequate for the number of cultivars in the primary center of diversity of the genus, Southeast Asia. Many of these cultivars were given names that were later discovered to be synonyms.[23] In a series of papers published from 1947 onward, Ernest Cheesman showed that Linnaeus's Musa sapientum and Musa paradisiaca were cultivars and descendants of two wild seed-producing species, Musa acuminata and Musa balbisiana, both first described by Luigi Aloysius Colla.[24] Cheesman recommended the abolition of Linnaeus's species in favor of reclassifying bananas according to three morphologically distinct groups of cultivars – those primarily exhibiting the botanical characteristics of Musa balbisiana, those primarily exhibiting the botanical characteristics of Musa acuminata, and those with characteristics of both.[23] Researchers Norman Simmonds and Ken Shepherd proposed a genome-based nomenclature system in 1955. This system eliminated almost all the difficulties and inconsistencies of the earlier classification of bananas based on assigning scientific names to cultivated varieties. Despite this, the original names are still recognized by some authorities, leading to confusion.[24][25] The accepted scientific names for most groups of cultivated bananas are Musa acuminata Colla and Musa balbisiana Colla for the ancestral species, and Musa × paradisiaca L. for the hybrid of the two.[16] An unusual feature of the genetics of the banana is that chloroplast DNA is inherited maternally, while mitochondrial DNA is inherited paternally. This facilitates taxonomic study of species and subspecies relationships.[26] In regions such as North America and Europe, Musa fruits offered for sale can be divided into small sweet "bananas" eaten raw when ripe as a dessert, and large starchy "plantains" or cooking bananas, which do not have to be ripe. Linnaeus made this distinction when naming two "species" of Musa.[27] Members of the "plantain subgroup" of banana cultivars, most important as food in West Africa and Latin America, correspond to this description, having long pointed fruit. They are described by Ploetz et al. as "true" plantains, distinct from other cooking bananas.[28] The cooking bananas of East Africa belong to a different group, the East African Highland bananas.[7] Further, small farmers in Colombia grow a much wider range of cultivars than large commercial plantations do,[29] and in Southeast Asia—the center of diversity for bananas, both wild and cultivated—the distinction between "bananas" and "plantains" does not work. Many bananas are used both raw and cooked. There are starchy cooking bananas which are smaller than those eaten raw. The range of colors, sizes and shapes is far wider than in those grown or sold in Africa, Europe or the Americas.[27] Southeast Asian languages do not make the distinction between "bananas" and "plantains" that is made in English. Thus both Cavendish dessert bananas and Saba cooking bananas are called pisang in Malaysia and Indonesia, kluai in Thailand and chuối in Vietnam.[30] Fe'i bananas, grown and eaten in the islands of the Pacific, are derived from a different wild species. Most Fe'i bananas are cooked, but Karat bananas, which are short and squat with bright red skins, are eaten raw.[31] Original native ranges of the ancestors of modern edible bananas. Musa acuminata (green), Musa balbisiana (orange)[32] See also: Musa acuminata, Domesticated plants and animals of Austronesia, and East African Highland bananas Fruits of wild-type bananas have numerous large, hard seeds. The earliest domestication of bananas (Musa spp.) was from naturally occurring parthenocarpic (seedless) individuals of Musa banksii in New Guinea. These were cultivated by Papuans before the arrival of Austronesian-speakers. Numerous phytoliths of bananas have been recovered from the Kuk Swamp archaeological site and dated to around 10,000 to 6,500 BP.[33][34][35] Foraging humans in this area began domestication in the late Pleistocene using transplantation and early cultivation methods.[36][37] Various investigations[37][36] – including Denham et al., 2003 – determine that by the early to middle of the Holocene the process was complete.[36] From New Guinea, cultivated bananas spread westward into Island Southeast Asia through proximity (not migrations). They hybridized with other (possibly independently domesticated) subspecies of Musa acuminata as well as M. balbisiana in the Philippines, northern New Guinea, and possibly Halmahera. These hybridization events produced the triploid cultivars of bananas commonly grown today. From Island Southeast Asia, they became part of the staple domesticated crops of the Austronesian peoples and were spread via their ancient seaborne migrations and ancient maritime trading routes into Oceania, Africa, South Asia, and Indochina.[33][34][35] Chronological dispersal of Austronesian peoples across the Indo-Pacific[38] Bananas are generally believed to have been introduced to Africa from Southeast Asia via the Austronesian settlement of Madagascar (c. 600 AD).[39][40][41] This is supported by relict populations of (accidentally-introduced) seeded Musa acuminata in northeastern Madagascar and Pemba Island (off Tanzania), as well as the phenotypes of cultivated polyploid bananas, and their distribution; all of which provide the clearest evidence of a Southeast Asian origin.[39][40] However, the role of Madagascar as a staging board for the dispersal of bananas (and other Asian crops) is unclear. Malagasy people colonized Madagascar from Island Southeast Asia around 600 AD onwards, but contact between East Africa and Island Southeast Asia dates back to at least 300 BC or earlier. The possibility that bananas may have been introduced from earlier Austronesian settlements in the East African coast that pre-date the settlement of Madagascar can not be ruled out.[42] These ancient introductions resulted in the banana subgroup now known as the "true" plantains, which include the East African Highland bananas and the Pacific plantains (the Iholena and Maoli-Popo'ulu subgroups). Genetic evidence show that East African Highland bananas (AAA) originated from banana populations introduced to Africa from the region between Java, Borneo, and New Guinea. Pacific plantains (AAB), on the other hand, were introduced to the Pacific Islands from banana populations originating from either eastern New Guinea or the Bismarck Archipelago.[33][34] Another wave of introductions later spread domesticated polyploid bananas to other parts of tropical Asia, particularly Indochina and the Indian subcontinent.[33][34] Southeast Asia remains the region of primary diversity of the banana. Areas of secondary diversity are found in Africa, indicating a long history of banana cultivation there.[43] 21st century discoveries of alleged banana phytoliths in Uganda and Cameroon dating to the first millennium BC and earlier triggered a debate about the date of the first introduction of bananas to East Africa.[39][44][45] However, the identification of the remains in Uganda as phytoliths, much less banana phytoliths, are now considered dubious. The Cameroon phytoliths, on the other hand, are confirmed as Musa, despite early doubts that it may be from Ensete. However, its incongruous early date (all other archaeobotanical remains of bananas in Africa date to at least the first millennium AD) remains questionable due to the low number of phytoliths recovered (25), the absence of additional phytoliths in more recent sediments, and the possibility that it was the result of stratigraphic mixing.[39] An introduction date of 2000 to 1000 BC is also unlikely as this was long before there were any evidence of agriculture in East Africa. Polyploid banana cultivars are sterile and do not spread without human cultivation.[39] Similarly, phytoliths recovered from the Kot Diji archaeological site in Pakistan were interpreted as evidence that bananas were known to the Indus Valley civilisation. This may be a possible indication of very early dispersal of bananas by Austronesian traders by sea from as early as 2000 BCE. But this is still putative, as they may have come from local wild Musa species used for fiber or as ornamentals, not food; and banana phytoliths are absent in other contemporary sites in South Asia.[35] Glucanase and two other proteins specific to Musaceae were also found in dental calculus from the early Iron Age (12th century BCE) Philistines in Tel Erani in the southern Levant. However, the authors only tentatively identify it as Musa, as the proteins can also be found in the Ensete (which are cultivated for their edible corms and psuedostems in Africa).[46] Further information: Arab Agricultural Revolution Actual and probable diffusion of bananas during the Arab Agricultural Revolution (700–1500 CE)[47] The banana may have been present in isolated locations elsewhere in the Middle East on the eve of Islam. The spread of Islam was followed by far-reaching diffusion. There are numerous references to it in Islamic texts (such as poems and hadiths) beginning in the 9th century. By the 10th century, the banana appeared in texts from Palestine and Egypt. From there it diffused into North Africa and Muslim Iberia during the Arab Agricultural Revolution.[48][47] An article on banana tree cultivation is included in Ibn al-'Awwam's 12th-century agricultural work, Kitāb al-Filāḥa (Book on Agriculture).[49] During the Middle Ages, bananas from Granada were considered among the best in the Arab world.[47] Bananas were certainly grown in the Christian Kingdom of Cyprus by the late medieval period. Writing in 1458, the Italian traveller and writer Gabriele Capodilista wrote favourably of the extensive farm produce of the estates at Episkopi, near modern-day Limassol, including the region's banana plantations.[50] Further information: Columbian exchange Illustration of fruit and plant,Acta Eruditorum, 1734 In the early modern period, bananas were encountered by European explorers during the Magellan expedition in 1521, in both Guam and the Philippines. Lacking a name for the fruit, the ship's historian Antonio Pigafetta described them as "figs more than one palm long."[51][52]:130,132 Bananas were introduced to South America by Portuguese sailors who brought them from West Africa in the 16th century.[53] Southeast Asian banana cultivars, as well as abaca grown for fibers, were introduced to North and Central America by the Spanish from the Philippines, via the Manila galleons.[54] Further information: History of modern banana plantations in the Americas Plantation in the Philippines, 2010 In the 15th and 16th centuries, Portuguese colonists started banana plantations in the Atlantic Islands, Brazil, and western Africa.[55] North Americans began consuming bananas on a small scale at very high prices shortly after the Civil War, though it was only in the 1880s that the food became more widespread.[56] As late as the Victorian Era, bananas were not widely known in Europe, although they were available.[55] The earliest modern plantations originated in Jamaica and the related Western Caribbean Zone, including most of Central America. Plantation cultivation involved the combination of modern transportation networks of steamships and railroads with the development of refrigeration that allowed more time between harvesting and ripening. North American shippers like Lorenzo Dow Baker and Andrew Preston, the founders of the Boston Fruit Company started this process in the 1870s, with the participation of railroad builders like Minor C. Keith. Development led to the multi-national giant corporations like Chiquita and Dole.[56] These companies were monopolistic, vertically integrated (controlling growing, processing, shipping and marketing) and usually used political manipulation to build enclave economies (internally self-sufficient, virtually tax exempt, and export-oriented, contributing little to the host economy). Their political maneuvers, which gave rise to the term banana republic for states such as Honduras and Guatemala, included working with local elites and their rivalries to influence politics or playing the international interests of the United States, especially during the Cold War, to keep the political climate favorable to their interests.[57] Further information: History of peasant banana production in the Americas Small-scale banana production, Liberia, 2013 The vast majority of the world's bananas are cultivated for family consumption or for sale on local markets. They are grown in large quantities in India, while many other Asian and African countries host numerous small-scale banana growers who sell at least some of their crop.[58] Peasants with smallholdings of 1 to 2 acres in the Caribbean produce bananas for the world market, often alongside other crops.[59] In many tropical countries, the main cultivars produce green (unripe) bananas used for cooking. Because bananas and plantains produce fruit year-round, they provide a valuable food source during the hunger season between harvests of other crops, and are thus important for global food security.[60] See also: List of banana cultivars Bananas are propagated asexually from offshoots. The plant is allowed to produce two shoots at a time; a larger one for immediate fruiting and a smaller "sucker" or "follower" to produce fruit in 6–8 months.[8] As a non-seasonal crop, bananas are available fresh year-round.[61] They are grown in some 135 countries.[62] Main article: Cavendish banana Cultivars in the Cavendish group dominate the world market. In global commerce in 2009, by far the most important cultivars belonged to the triploid Musa acuminata AAA group of Cavendish group bananas.[63] Disease is threatening the production of the Cavendish banana worldwide. It is unclear if any existing cultivar can replace Cavendish bananas, so various hybridisation and genetic engineering programs are attempting to create a disease-resistant, mass-market banana. One such strain that has emerged is the Taiwanese Cavendish or Formosana.[64][65][66] Export bananas are picked green, and ripened in special rooms upon arrival in the destination country. These rooms are air-tight and filled with ethylene gas to induce ripening. This mimics the normal production of this gas as a ripening hormone.[67][68] Ethylene stimulates the formation of amylase, an enzyme that breaks down starch into sugar, influencing the taste. Ethylene signals the production of pectinase, a different enzyme which breaks down the pectin between the cells of the banana, causing the banana to soften as it ripens.[67][68] The vivid yellow color many consumers in temperate climates associate with bananas is caused by ripening around 18 °C (64 °F), and does not occur in Cavendish bananas ripened in tropical temperatures (over 27 °C (81 °F)), which leaves them green.[69][70] Ralstonia solanacearum on an overripe banana Bananas are transported over long distances from the tropics to world markets.[71] To obtain maximum shelf life, harvest comes before the fruit is mature. The fruit requires careful handling, rapid transport to ports, cooling, and refrigerated shipping. The goal is to prevent the bananas from producing their natural ripening agent, ethylene. This technology allows storage and transport for 3–4 weeks at 13 °C (55 °F). On arrival, bananas are held at about 17 °C (63 °F) and treated with a low concentration of ethylene. After a few days, the fruit begins to ripen and is distributed for final sale. Ripe bananas can be held for a few days at home. If bananas are too green, they can be put in a brown paper bag with an apple or tomato overnight to speed up the ripening process.[72][73] The excessive use of fertilizers contributes greatly to eutrophication in streams and lakes, harming aquatic life, while expanding banana production has led to deforestation. As soil nutrients are depleted, more forest is cleared for plantations. This causes soil erosion and increases the frequency of flooding.[74] Voluntary sustainability standards such as Rainforest Alliance and Fairtrade are being used to address some of these issues. Banana production certified in this way grew rapidly at the start of the 21st century to represent 36% of banana exports by 2016.[75] However, such standards are applied mainly in countries which focus on the export market, such as Colombia, Costa Rica, Ecuador, and Guatemala; worldwide they cover only 8–10% of production.[76] Mutation breeding can be used in this crop. Aneuploidy is a source of significant variation in allotriploid varieties. For one example, it can be a source of TR4 resistance. Lab protocols have been devised to screen for such aberrations and for possible resulting disease resistances.[77] Wild Musa spp. provide useful resistance genetics, and are vital to breeding for TR4 resistance, as shown in introgressed resistance from wild relatives.[78] Bananas form a hybrid-polyploid complex; hybrids can be diploid, triploid, tetraploid, or pentaploid, i.e. they may have 2, 3, 4, or 5 sets of chromosomes. This makes them difficult to breed as hybrids are often sterile, in addition to the challenge of breeding seedless (parthenocarpic) varieties.[citation needed] The Honduran Foundation for Agricultural Research has bred a seedless banana that is resistant to both Panama disease and black Sigatoka disease. The team made use of the fact that "seedless" varieties do rarely produce seeds; they obtained around fifteen seeds from some 30,000 cultivated plants, pollinated by hand with pollen from wild Asian bananas.[79] 2022 production (in millions of tonnes) Bananas Plantains Total India 34.5 34.5 China 11.8 11.8 Uganda 10.4 10.4 Indonesia 9.2 9.2 Philippines 5.9 3.1 9.0 Nigeria 8.0 8.0 Ecuador 6.1 0.9 6.9 Brazil 6.9 6.9 Democratic Republic of the Congo 0.8 4.9 5.7 Cameroon 0.9 4.7 5.5 Colombia 2.5 2.5 5.0 Guatemala 4.8 0.3 5.0 Ghana 0.1 4.8 4.9 Angola 4.6 4.6 Tanzania 3.5 0.6 4.1 Rwanda 2.2 0.9 3.1 Costa Rica 2.5 0.1 2.6 Ivory Coast 0.5 2.1 2.6 Mexico 2.6 2.6 Dominican Republic 1.4 1.2 2.5 Vietnam 2.5 2.5 Peru 2.4 2.4 World 135.1 44.2 179.3 Source: FAOSTAT of the United Nations[80] Note: Some countries distinguish between bananas and plantains, but four of the top six producers do not, thus necessitating comparisons using the total for bananas and plantains combined. As of 2018[update], bananas are exported in larger volume and to a larger value than any other fruit.[64] In 2022, world production of bananas and plantains combined was 179 million tonnes, led by India and China with a combined total of 26% of global production. Other major producers were Uganda, Indonesia, the Philippines, Nigeria and Ecuador.[80] As reported for 2013, total world exports were 20 million tonnes of bananas and 859,000 tonnes of plantains.[81] Ecuador and the Philippines were the leading exporters with 5.4 and 3.3 million tonnes, respectively, and the Dominican Republic was the leading exporter of plantains with 210,350 tonnes.[81] Bananas are damaged by a variety of pests, especially nematodes and insects.[82] Banana roots are subject to damage from multiple species of parasitic nematodes. Radopholus similis causes nematode root rot, the most serious nematode disease of bananas in economic terms.[83] Root-knot is the result of infection by species of Meloidogyne,[84] while root-lesion is caused by species of Pratylenchus,[85] and spiral nematode root damage is the result of infection by Helicotylenchus species.[86] Radopholus similis inside banana root, causing nematode root rot Among the main insect pests of banana cultivation are two beetles that cause substantial economic losses, the banana borer Cosmopolites sordidus and the banana stem weevil Odoiporus longicollis. Other significant pests include aphids and scarring beetles.[82] The banana borer is a destructive pest that tunnels inside the plant.[82] Main article: List of banana and plantain diseases Although in no danger of outright extinction, bananas of the Cavendish group, which dominate the global market, are under threat.[87] There is a need to enrich banana biodiversity by producing diverse new banana varieties, not just focusing on the Cavendish.[88] Its predecessor 'Gros Michel', discovered in the 1820s, was similarly dominant but had to be replaced after widespread infections of Panama disease. Monocropping of Cavendish similarly leaves it susceptible to disease and so threatens both commercial cultivation and small-scale subsistence farming.[87][89] Within the data gathered from the genes of hundreds of bananas, the botanist Julie Sardos has found several wild banana ancestors currently unknown to scientists, whose genes could provide a means of defense against banana crop diseases.[90] Some commentators have remarked that those variants which could replace what much of the world considers a "typical banana" are so different that most people would not consider them the same fruit, and blame the decline of the banana on monogenetic cultivation driven by short-term commercial motives.[57] Overall, fungal diseases are disproportionately important to small island developing states.[91] Panama disease Fusarium fungus climbing up through the banana stem Panama disease is caused by a Fusarium soil fungus, which enters the plants through the roots and travels with water into the trunk and leaves, producing gels and gums that cut off the flow of water and nutrients, causing the plant to wilt, and exposing the rest of the plant to lethal amounts of sunlight. Prior to 1960, almost all commercial banana production centered on the Gros Michel cultivar, which was highly susceptible.[92] Cavendish was chosen as the replacement for Gros Michel because, among resistant cultivars, it produces the highest quality fruit. It requires more care during shipping,[93] and its quality compared to Gros Michel is debated.[94] Fusarium wilt TR4, a reinvigorated strain of Panama disease, was discovered in 1993. This virulent form of Fusarium wilt has destroyed Cavendish plantations in several southeast Asian countries and spread to Australia and India.[88] As the soil-based fungi can easily be carried on boots, clothing, or tools, the wilt spread to the Americas despite years of preventive efforts.[88] Without genetic diversity, Cavendish is highly susceptible to TR4, and the disease endangers its commercial production worldwide.[95] The only known defense to TR4 is genetic resistance.[88] This is conferred either by RGA2, a gene isolated from a TR4-resistant diploid banana, or by the nematode-derived Ced9.[96][97] This may be achieved by genetic modification.[96][97] Leaf infected with black sigatoka Black sigatoka is a fungal leaf spot disease first observed in Fiji in 1963 or 1964. It is caused by the ascomycete Mycosphaerella fijiensis. The disease, also called black leaf streak, has spread to banana plantations throughout the tropics from infected banana leaves used as packing material. It affects all main cultivars of bananas and plantains (including the Cavendish cultivars[98]), impeding photosynthesis by blackening parts of the leaves, eventually killing the entire leaf. Starved for energy, fruit production falls by 50% or more, and the bananas that do grow ripen prematurely, making them unsuitable for export. The fungus has shown ever-increasing resistance to treatment; spraying with fungicides may be required as often as 50 times a year. Better strategies, with integrated pest management, are needed.[99][100] Colony of banana aphids (Pentalonia nigronervosa), vector of banana bunchy top virus Banana bunchy top virus is a plant virus of the genus Babuvirus, family Nanonviridae affecting Musa spp. (including banana, abaca, plantain and ornamental bananas) and Ensete spp. in the family Musaceae.[101] Banana bunchy top disease symptoms include dark green streaks of variable length in leaf veins, midribs and petioles. Leaves become short and stunted as the disease progresses, becoming 'bunched' at the apex of the plant. Infected plants may produce no fruit or the fruit bunch may not emerge from the pseudostem.[102] The virus is transmitted by the banana aphid Pentalonia nigronervosa and is widespread in Southeast Asia, Asia, the Philippines, Taiwan, Oceania and parts of Africa. There is no cure, but it can be effectively controlled by the eradication of diseased plants and the use of virus-free planting material.[103] No resistant cultivars have been found, but varietal differences in susceptibility have been reported. The commercially important Cavendish subgroup is severely affected.[102] Banana bacterial wilt is a bacterial disease caused by Xanthomonas campestris pv. musacearum.[104] First identified on a close relative of bananas, Ensete ventricosum, in Ethiopia in the 1960s,[105] The disease was first seen in Uganda in 2001 affecting all banana cultivars. Since then it has been diagnosed in Central and East Africa, including the banana growing regions of Rwanda, the Democratic Republic of the Congo, Tanzania, Kenya, Burundi, and Uganda.[106] The cold storage room for the banana collection at Bioversity International's Musa Germplasm Transit Centre Given the narrow range of genetic diversity present in bananas and the many threats via biotic (pests and diseases) and abiotic threats (such as drought) stress, conservation of the full spectrum of banana genetic resources is ongoing.[107] In 2024, the economist Pascal Liu of the FAO described the impact of global warming as an "enormous threat" to the world supply of bananas.[108] Banana germplasm is conserved in many national and regional gene banks, and at the world's largest banana collection, the International Musa Germplasm Transit Centre, managed by

Bioversity International and hosted at KU Leuven in Belgium.[109] Since Musa cultivars are mostly seedless, they are conserved by three main methods: in vivo (planted in field collections), in vitro (as plantlets in test tubes within a controlled environment), and by cryopreservation (meristems conserved in liquid nitrogen at −196 °C).[107] Genes from wild banana species are conserved as DNA and as cryopreserved pollen.[107] Seeds from wild species are sometimes conserved, although less commonly, as they are difficult to regenerate. In addition, bananas and their crop wild relatives are conserved in situ, in the wild natural habitats where they evolved and continue to do so. Diversity is also conserved in farmers' fields where continuous cultivation, adaptation and improvement of cultivars is often carried out by small-scale farmers growing traditional local cultivars.[110] Bananas, raw (Daily Value)Nutritional value per 100 g (3.5 oz)Energy371 kJ (89 kcal)Carbohydrates22.84 gSugars12.23 gDietary fiber2.6 g Fat0.33 g Protein1.09 g Vitamins and minerals VitaminsQuantity %DV†Vitamin A equiv.2% 19.2 μgThiamine (B1)3% 0.031 mgRiboflavin (B2)6% 0.073 mgNiacin (B3)4% 0.665 mgPantothenic acid (B5)7% 0.334 mgVitamin B624% 0.4 mgFolate (B9)5% 20 μgCholine2% 9.8 mgVitamin C10% 8.7 mg MineralsQuantity %DV†Copper11% 0.101 mgIron1% 0.26 mgMagnesium6% 27 mgManganese12% 0.27 mgPhosphorus2% 22 mgPotassium12% 358 mgSodium0% 1 mgZinc1% 0.15 mg Other constituentsQuantityWater74.91 g Full Link to USDA Database entry values are for edible portion†Percentages estimated using US recommendations for adults,[111] except for potassium, which is estimated based on expert recommendation from the National Academies.[112] A raw banana (not including the peel) is 75% water, 23% carbohydrates, 1% protein, and contains negligible fat. A reference amount of 100 grams (3.5 oz) supplies 89 calories, 24% of the Daily Value of vitamin B6, and moderate amounts of vitamin C, manganese, potassium, and dietary fiber, with no other micronutrients in significant content (table). Although bananas are commonly thought to contain exceptional potassium content,[113][114] their actual potassium content is not high per typical food serving, having only 12% of the Daily Value for potassium (table). The potassium-content ranking for bananas among fruits, vegetables, legumes, and many other foods is medium.[115][116] See also: Cooking plantain and List of banana dishes Wikibooks Cookbook has a recipe/module on Banana Bananas are a staple starch for many tropical populations. Depending upon cultivar and ripeness, the flesh can vary in taste from starchy to sweet, and texture from firm to mushy. Both the skin and inner part can be eaten raw or cooked. The primary component of the aroma of fresh bananas is isoamyl acetate (also known as banana oil), which, along with several other compounds such as butyl acetate and isobutyl acetate, is a significant contributor to banana flavor.[117] Plantains are eaten cooked, often as fritters.[118] Pisang goreng, bananas fried with batter, is a popular street food in Southeast Asia.[119] Bananas feature in Philippine cuisine, with desserts like maruya banana fritters.[120] Bananas can be made into fruit preserves.[121] Banana chips are a snack produced from sliced and fried bananas, such as in Kerala.[122] Dried bananas are ground to make banana flour.[123] In Africa, matoke bananas are cooked in a sauce with meat and vegetables such as peanuts or beans to make the breakfast dish katogo.[124] In Western countries, bananas are used to make desserts such as banana bread.[125] Banana curry with lemon, Andhra Pradesh, India Pisang goreng fried banana in batter, a popular snack in Indonesia Banana in sweet gravy, known as pengat pisang in Malaysia Wikibooks Cookbook has a recipe/module on Banana Blossom Banana flowers (also called "banana hearts" or "banana blossoms") are used as a vegetable[126] in South Asian and Southeast Asian cuisine. The flavor resembles that of artichoke. As with artichokes, both the fleshy part of the bracts and the heart are edible.[127] Banana flowers and leaves on sale in Thailand Kilawin na pusô ng saging, a Filipino dish of banana flowers Main article: Banana leaf Banana leaves are large, flexible, and waterproof. While generally too tough to actually be eaten, they are often used as ecologically friendly disposable food containers or as "plates" in South Asia and several Southeast Asian countries.[128] In Indonesian cuisine, banana leaf is employed in cooking methods like pepes and botok; banana leaf packages containing food ingredients and spices are cooked in steam or in boiled water, or are grilled on charcoal. Certain types of tamales are wrapped in banana leaves instead of corn husks.[129] When used so for steaming or grilling, the banana leaves protect the food ingredients from burning and add a subtle sweet flavor.[1] In South India, it is customary to serve traditional food on a banana leaf.[130] In Tamil Nadu (India), dried banana leaves are used as to pack food and to make cups to hold liquid food items.[131] Banana leaf as disposable plate for chicken satay in Java Nicaraguan Nacatamales, in banana leaves, ready to be steamed Main article: Banana pith The tender core of the banana plant's trunk is also used in South Asian and Southeast Asian cuisine.[132] Examples include the Burmese dish mohinga, and the Filipino dishes inubaran and kadyos, manok, kag ubad.[133][134] Kaeng yuak, a northern Thai curry of the core of the banana plant Further information: Manila hemp and Banana paper Fiber harvested from the pseudostems and leaves of the abacá banana (Musa textilis) and other bananas have been used for textiles in the Philippines since ancient times. Archaeological evidence of cloth-weaving tools like spindle whorls date back to the period between 1000 BC and 500 AD in the Philippines. However, the tropical environment and the sparsity of pre-colonial records makes it hard to trace its antiquity.[135][136] Nevertheless, abacá bananas are the main source of fibers for traditional textiles still woven among various ethnic groups of the Philippines. Examples of abacá-based textiles include the t'nalak, made by the Tiboli tribe of South Cotabato, and dagmay, made by the Bagobo people.[137] Traditional abacá cloth collected from the Philippines during the Spanish colonial period is found in museum collections around the world, like the Boston Museum of Fine Arts and the Textile Museum of Canada.[138] The Banton Burial Cloth (c. 1200-1300 AD) of the Philippines, the oldest surviving example of banana textile (and the oldest example of warp ikat weaving in Southeast Asia). It is made from abacá,[139] a species of banana endemic to the Philippines. The oldest surviving example of textile made from banana fibers is the Banton Burial Cloth recovered from a coffin in the sacred Ipot Cave of Banton, Romblon, Philippines, and dated to around the 13th and 14th centuries.[139][140][141] Abacá textiles were also mentioned numerous times in Spanish colonial records in the Philippines since the 16th century, eventually acquiring the Philippine Spanish name medriñaque (entering the contemporary English language as "medrinacks", "medrianacks", "medrianackes", and "medrinacles", among other names) and the English name "Manila hemp". Aside from indigenous clothing for native Filipinos, medriñaque was also used during the colonial era as canvas for sails and for stiffening clothing like skirts, collars, and doublets.[135][142][143] The inner fibers are also used in the making of hats, including the "Manila hats", hammocks, matting, cordage, ropes, coarse twines, and Manila paper.[138][144] By the 19th century, abacá fiber had become one of the most important economic exports of the Philippines. They were in demand due to their strength and saltwater-resistance.[145] Outside the Philippines, abacá was first cultivated on a large scale in Sumatra in 1925 under the Dutch, who had observed its cultivation in the Philippines for cordage since the nineteenth century, followed up by plantings in Central America in 1929 sponsored by the U.S. Department of Agriculture.[146] It also was transplanted into India and Guam.[147] A similar tradition of weaving banana textiles (from Musa basjoo and Musa balbisiana) also existed among the non-Han minority groups in southern China since at least the Han Dynasty (c. 202 BC-220 BC). Both fruit-bearing and fibrous banana species have been used.[135] This textile tradition along with the banana species Musa basjoo (Japanese bashō, 芭蕉) was introduced to the Ryukyu Islands of Japan at around the 14th century. In the Japanese system of kijōka-bashōfu, leaves and shoots are cut from the plant periodically to ensure softness. Harvested shoots are first boiled in lye to prepare fibers for yarn-making. These banana shoots produce fibers of varying degrees of softness, yielding yarns and textiles with differing qualities for specific uses. For example, the outermost fibers of the shoots are the coarsest, and are suitable for tablecloths, while the softest innermost fibers are desirable for kimono and kamishimo. This traditional Japanese cloth-making process requires many steps, all performed by hand.[148] Banana paper can be made either from the bark of the banana plant, mainly for artistic purposes, or from the fibers of the stem and non-usable fruits. The paper may be hand-made or industrially processed.[149] T'nalak cloth of the T'boli dreamweavers, one of the many types of traditional abacá cloths in the Philippines Abacá fibers being stripped using traditional methods in the Philippines Weaving looms processing Manila hemp fabric A modern Manila hemp bag The large leaves of bananas are locally used as umbrellas.[1] Banana peel may have capability to extract heavy metal contamination from river water, similar to other purification materials.[150][151] Waste bananas can be used to feed livestock.[152] As with all living things, potassium-containing bananas emit radioactivity at low levels occurring naturally from the potassium-40 (K-40) isotope.[153] The banana equivalent dose of radiation was developed in 1995 as a simple teaching-tool to educate the public about the natural, small amount of K-40 radiation occurring in everyone and in common foods.[154][113] Individuals with a latex allergy may experience a reaction to handling or eating bananas.[155][156] Bananas used in puja in the Hindu festival of Chhath in Northern India The Edo period poet Matsuo Bashō is named after the Japanese word 芭蕉 (Bashō) for the Japanese banana. The Bashō planted in his garden by a grateful student became a source of inspiration to his poetry, as well as a symbol of his life and home.[157] The song "Yes! We Have No Bananas" was written by Frank Silver and Irving Cohn and originally released in 1923; for many decades, it was the best-selling sheet music in history. Since then the song has been rerecorded several times and has been particularly popular during banana shortages.[158][159] A person slipping on a banana peel has been a staple of physical comedy for generations. An American comedy recording from 1910 features a popular character of the time, "Uncle Josh", claiming to describe his own such incident.[160] The banana's suggestively phallic shape has been exploited in artworks from Giorgio de Chirico's 1913 painting The Uncertainty of the Poet onwards. In 2019, an exhibition of Natalia LL's video and set of photographs showing a woman "sucking on a banana" at the National Museum in Warsaw was taken down and the museum's director reprimanded.[161] The cover artwork for the 1967 debut album of The Velvet Underground features a banana made by Andy Warhol. On the original vinyl LP version, the design allowed the listener to "peel" this banana to find a pink, peeled banana on the inside.[162] In 1989, the feminist Guerilla Girls made a screenprint with two bananas, intentionally reminiscent of Warhol's, arranged to form a "0" to answer the question in the artwork, "How many works by women artists were in the Andy Warhol and Tremaine auctions at Sotheby's?". [163] Italian artist Maurizio Cattelan created a 2019 concept art piece titled Comedian[164] involving taping a banana to a wall using silver duct tape. The piece was exhibited briefly at the Art Basel in Miami before being removed from the exhibition and eaten without permission in another artistic stunt titled Hungry Artist by New York artist David Datuna.[165] Nang Tani, the female ghost of Thai folklore that haunts banana plants In India, bananas serve a prominent part in many festivals and occasions of Hindus. In South Indian weddings, particularly Tamil weddings, banana trees are tied in pairs to form an arch as a blessing to the couple for a long-lasting, useful life.[166][167] In Thailand, it is believed that a certain type of banana plant may be inhabited by a spirit, Nang Tani, a type of ghost related to trees and similar plants that manifests itself as a young woman.[168] People often tie a length of colored satin cloth around the pseudostem of the banana plants.[169] In Malay folklore, the ghost known as Pontianak is associated with banana plants (pokok pisang), and its spirit is said to reside in them during the day.[170] See also: List of ethnic slurs § Banana, and Racism in sport In European, British, and Australian sport, throwing a banana at a member of an opposing team has long been used as a form of racial abuse.[171][172] The act, which was commonplace in England in the 1980s, is meant to taunt players of Black African ancestry by equating them to apes or monkeys.[173] Corporación Bananera Nacional Domesticated plants and animals of Austronesia Orange, another fruit exported and consumed in large quantities United Brands Company v Commission of the European Communities ^ a b c d Morton, Julia F. 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Los Baños, Philippines: International Network for Improvement of Banana and Plantain – Asia and the Pacific Office. ISBN 978-971-91751-2-4. Archived from the original (PDF) on May 30, 2013. Retrieved January 8, 2013. Wikimedia Commons has media related to Bananas. Banana at the Wikibooks Cookbook subproject Kew plant profile: Musa acuminata (banana) Retrieved from " In this blog post, we will delve into the world of banana plants and provide a comprehensive guide on how to effectively stop them from spreading and taking over your garden. By implementing the techniques outlined in this guide, you can effectively stop banana plants from spreading and maintain a manageable and productive banana patch. Banana plants, with their lush green leaves and sweet, nutritious fruit, are a popular addition to many gardens. However, their aggressive growth habits can quickly turn into a problem if not managed properly. In this blog post, we will delve into the world of banana plants and provide a comprehensive guide on how to effectively stop them from spreading and taking over your garden. Understanding Banana Plant Growth Banana plants are rhizomatous perennials, meaning they spread by sending out underground rhizomes. These rhizomes produce new shoots, called suckers, which eventually grow into new banana plants. If left unchecked, these suckers can quickly spread and create a dense thicket of banana plants. Methods to Control Banana Plant Spread 1. Physical Barriers One of the most effective ways to stop banana plants from spreading is to create physical barriers around them. This can be done by digging a trench around the base of the plant, at least 12 inches deep and 6 inches wide. Fill the trench with gravel or other coarse material to prevent the rhizomes from spreading underground. 2. Chemical Control Chemical control can be an effective method for controlling banana plant spread. Herbicides containing glyphosate or triclopyr can be applied to the suckers to kill them and prevent them from growing into new plants. However, it is important to use herbicides carefully and according to the manufacturer's instructions to avoid harming other plants or the environment. 3. Regular Removal of Suckers Regularly removing suckers is a crucial step in preventing banana plants from spreading. Suckers should be removed as soon as they appear, either by cutting them off with a sharp knife or pulling them out by hand. Removing suckers will redirect the plant's energy into fruit production and help control its spread. 4. Soil Management Managing the soil around banana plants can also help control their spread. Banana plants prefer well-drained, fertile soil. By amending the soil with compost or other organic matter, you can improve drainage and reduce the likelihood of the rhizomes spreading underground. 5. Mulching Mulching around banana plants can help suppress the growth of suckers. Use a thick layer of organic mulch, such as straw, wood chips, or compost, to cover the soil around the plant. Mulch will help retain moisture, suppress weeds, and create a barrier that makes it difficult for suckers to break through. 6. Container Growing If you want to enjoy banana plants without worrying about their spread, consider growing them in containers. This will limit the plant's root system and prevent it from spreading into the surrounding soil. Choose a container that is large enough to accommodate the plant's growth and provide adequate drainage. 7. Pruning Pruning banana plants can help control their size and spread. Remove any dead or diseased leaves and cut back any suckers that are growing too close to the main plant. Pruning will also encourage the plant to focus its energy on fruit production rather than spreading. Final Thoughts: Taming the Banana Beast By implementing the techniques outlined in this guide, you can effectively stop banana plants from spreading and maintain a manageable and productive banana patch. Whether you choose physical barriers, chemical control, regular sucker removal, or a combination of methods, the key is to be consistent and diligent in your efforts. Information You Need to Know Q: How often should I remove suckers from banana plants? A: Remove suckers as soon as they appear, ideally every few weeks. Q: Can I use vinegar to kill banana plant suckers? A: Yes, undiluted vinegar can be applied directly to suckers to kill them. Q: Is it safe to use herbicides around banana plants? A: Yes, but it is crucial to follow the manufacturer's instructions carefully and use herbicides that are specifically labeled for banana plants. Q: How deep should I dig the trench around banana plants? A: At least 12 inches deep and 6 inches wide. Q: Can I grow banana plants in pots to control their spread? A: Yes, growing banana plants in containers is an effective way to limit their spread. , the free encyclopedia that anyone can edit. 110,144 active editors 7,022,918 articles in English School in Sketty, Swansea, photographed in 1854 The period between 1701 and 1870 saw an expansion in access to formal education in Wales, though schooling was not yet universal. Several philanthropic efforts were made to provide education to the poor during the 18th century. In the early to mid-19th century, charitable schools were established to provide a basic education. Private schools aimed at the working classes also existed. State funding was introduced to schools from 1833. Some use of the Welsh language was made in 18th-century philanthropic education, at a time when most agricultural workers in Wales spoke only Welsh, and public opinion was keen for children to learn English. Many schools punished children for speaking Welsh, despite government studies that found such methods ineffective. The government did little to promote bilingual education. Grammar schools experienced difficulties and, by the end of the period, secondary education was limited. Dissenter academies and theological colleges offered higher education. (Full article...) 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Archive Start a new article Nominate an article Vera Rubin Observatory The Vera C. Rubin Observatory (pictured) in Chile releases the first light images from its new 8.4-meter (28 ft) telescope. In basketball, the Oklahoma City Thunder defeat the Indiana Pacers to win the NBA Finals. An attack on a Greek Orthodox church in Damascus, Syria, kills at least 25 people. The United States conducts military strikes on three nuclear facilities in Iran. In rugby union, the Crusaders defeat the Chiefs to win the Super Rugby Pacific final. Ongoing: Gaza war Iran–Israel war Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Lucien Nedzi Anne Burrell Frederick W. Smith Ron Taylor Mohammad Kazemi Marita Camacho Quirós Nominate an article June 25 Original rainbow flag 1658 – Anglo-Spanish War: The largest battle ever fought on Jamaica, the three-day Battle of Rio Nuevo, began. 1910 – The United States Congress passed the Mann Act, which prohibited the interstate transport of females for "immoral purposes". 1944 – World War II: U.S. Navy and Royal Navy ships bombarded Cherbourg, France, to support U.S. Army units engaged in the Battle of Cherbourg. 1978 – The rainbow flag (original version pictured) representing gay pride was first flown at the San Francisco Gay Freedom Day parade. 2009 – Singer Michael Jackson died as a result of the combination of drugs in his body. Giovanni Battista Riccioli (d. 1671)Eloísa Díaz (b. 1866)George Michael (b. 1963)Farrah Fawcett (d. 2009) More anniversaries: June 24 June 25 June 26 Archive By email List of days of the year About 1795 Turban Head eagle with original reverse 1797 Turban Head eagle with heraldic eagle reverse The Turban Head eagle was a ten-dollar gold piece, or eagle, struck by the United States Mint from 1795 to 1804. The piece was designed by Robert Scot, and was the first in the eagle series, which continued until the Mint ceased striking gold coins for circulation in 1933. The common name is a misnomer; Liberty does not wear a turban but a cap, believed by some to be a pileus or Liberty cap: her hair twisting around the headgear makes it appear to be a turban. The number of stars on the obverse was initially intended to be equal to the number of states in the Union, but with the number at 16, that idea was abandoned in favor of using 13 stars in honor of the original states. The initial reverse, featuring an eagle with a wreath in its mouth, proved unpopular and was replaced by a heraldic eagle. Increases in the price of gold made it profitable for the coins to be melted down, and in 1804, President Thomas Jefferson ended coinage of eagles; the denomination was not struck again for circulation for more than 30 years. These Turban Head eagles are in the National Numismatic Collection at the National Museum of American History. Coin design credit: United States Mint; photographed by Jaclyn Nash Recently featured: Springbok Geraldine Ulmar Shah Mosque (Isfahan) Archive More featured pictures Community portal – The central hub for editors, with resources, links, tasks, and announcements. Village pump – Forum for discussions about Wikipedia itself, including policies and technical issues. Site news – Sources of news about Wikipedia and the broader Wikimedia movement. Teahouse – Ask basic questions about using or editing Wikipedia. Help desk – Ask questions about using or editing Wikipedia. Reference desk – Ask research questions about encyclopedic topics. Content portals – A unique way to navigate the encyclopedia. Wikipedia is written by volunteer editors and hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other volunteer projects: CommonsFree media repository MediaWikiWiki software development Meta-WikiWikimedia project coordination WikibooksFree textbooks and manuals WikidataFree knowledge base WikinewsFree-content news WikiquoteCollection of quotations WikisourceFree-content library WikispeciesDirectory of species WikiversityFree learning tools WikivoyageFree travel guide WiktionaryDictionary and thesaurus This Wikipedia is written in English. Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles العربية Deutsch Español فارسی Français Italiano Nederlands 日本語 Polski Português Русский Svenska Українська Tiếng Việt 中文 250,000+ articles Bahasa Indonesia Bahasa Melayu Bân-lâm-gú Български Català Čeština Dansk Eesti Ελληνικά Esperanto Euskara עברית Հայերեն Magyar Norsk bokmål Română Simple English Slovenčina Srpski Srpskohrvatski Suomi Türkçe Oʻzbekcha 50,000+ articles Asturianu Azərbaycanca □□□□□ Bosanski کوردی Frysk Gaeilge Galego Hrvatski ქართული Kurdî Latviešu Lietuvių □□□□□□ Македонски □□□□□□□□□□ Norsk nynorsk □□□□□□ Shqip Slovenščina □□□ □□□□□□ اردو Retrieved from " 2 This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "1658" – news · newspapers · books · scholar · JSTOR (January 2016) (Learn how and when to remove this message) Calendar year Years Millennium 2nd millennium Centuries 16th century 17th century 18th century Decades 1630s 1640s 1650s 1660s 1670s Years 1655 1656 1657 1658 1659 1660 1661 vte January 30: Swedish troops cross the frozen waters of the Danish straits on foot in the March Across the Belts 1658 by topic Arts and science Architecture Art Literature Music Science Leaders State leaders Colonial governors Religious leaders Birth and death categories Births – Deaths Establishments and disestablishments categories Establishments – Disestablishments Works category Works vte 1658 in various calendarsGregorian calendar1658MDCLVIIIAb urbe condita2411Armenian calendar1107ԹՎ ՌՃԷAssyrian calendar6408Balinese saka calendar1579–1580Bengali calendar1064–1065Berber calendar2608English Regnal year9 Cha. 2 – 10 Cha. 2(Interregnum)Buddhist calendar2202Burmese calendar1020Byzantine calendar7166–7167Chinese calendar丁酉年 (Fire Rooster)4355 or 4148 — to —戊戌年 (Earth Dog)4356 or 4149Coptic calendar1374–1375Discordian calendar2824Ethiopian calendar1650–1651Hebrew calendar5418–5419Hindu calendars - Vikram Samvat1714–1715 - Shaka Samvat1579–1580 - Kali Yuga4758–4759Holocene calendar11658Igbo calendar658–659Iranian calendar1036–1037Islamic calendar1068–1069Japanese calendarMeireki 4 / Manji 1(万治元年)Javanese calendar1580–1581Julian calendarGregorian minus 10 daysKorean calendar3991Minguo calendar254 before ROC民前254年Nanakshahi calendar190Thai solar calendar2200–2201Tibetan calendar阴火鸡年(female Fire-Rooster)1784 or 1403 or 631 — to —阳土狗年(male Earth-Dog)1785 or 1404 or 632 June 14: Battle of the Dunes 1658 (MDCLVIII) was a common year starting on Tuesday of the Gregorian calendar and a common year starting on Friday of the Julian calendar, the 1658th year of the Common Era (CE) and Anno Domini (AD) designations, the 658th year of the 2nd millennium, the 58th year of the 17th century, and the 9th year of the 1650s decade. As of the start of 1658, the Gregorian calendar was 10 days ahead of the Julian calendar, which remained in localized use until 1923. Calendar year January 13 – Edward Sexby, who had plotted against Oliver Cromwell, dies in the Tower of London.[1] January 30 – The "March Across the Belts" (Tåget över Bält), Sweden's use of winter weather to send troops across the waters of the Danish straits at a time when winter has turned them to ice, begins. Within 17 days, Sweden's King Karl X Gustav leads troops across the ice belts to capture six of Denmark's islands as Swedish territory. February 5 – Prince Muhi al-Din Muhammad, one of the sons of India's Mughal, Emperor Shah Jahan, proclaims himself Emperor after Jahan names Muhi's older brother, Dara Shikoh, as regent, and departs from Aurangabad with troops. February 6 – Swedish troops of Charles X Gustav of Sweden cross The Great Belt in Denmark, over frozen sea.[2] March 8 (February 26 OS) – The peace between Sweden and Denmark-Norway is concluded in Roskilde by the Treaty of Roskilde, under which Denmark is forced to cede significant territory. This leads to Sweden reaching its territorial height during its time as a great power. April 15 – In India, the Battle of Dharmat is fought in the modern-day state of Madhya Pradesh between rival claimants to the throne of the Mughal Empire. Prince Muhi al-Din Muhammad, the son of the Emperor Shah Jahan, leads 30,000 men in a triumph over 22,000 troops led by Jaswant Singh of Marwar and Ratan Singh Rathore. Despite heavy losses, with more than 11,000 casualties, Prince Muhi, who has adopted the name Aurangzeb, continues toward Samugarh and Agra and captures the throne at the end of July. April 16 – In Skåneland, a region recently ceded by Denmark to the Swedish Empire, representatives of the nobility of the provinces of Blekinge, Halland and Scania gather at the Scanian city of Malmö to swear their allegiance to King Charles X Gustav of Sweden. May 1 – Hydriotaphia, Urn Burial and The Garden of Cyrus are published by Thomas Browne in England. May 29 – Aurangzeb wins the Battle of Samugarh as Indian Mughal regent Dara Shikoh makes a last effort to defend the Mughal capital Agra. June 3 – Pope Alexander VII appoints François de Laval vicar apostolic of New France. June 14 – Anglo-Spanish War (1654–60) and Franco-Spanish War (1635–59): In the Battle of the Dunes, a Spanish force attempting to lift a siege of Dunkirk is defeated by the French and English. England is then given Dunkirk, for its assistance in the victory. June 25–27 – In the Battle of Rio Nuevo, part of the Anglo-Spanish War, a Spanish invasion force fails to recapture Jamaica from the English. July 2 – The Siege of Toruń begins in Poland as troops of the Polish–Lithuanian Commonwealth and of Austria seek to recapture the city of Toruń from a garrison of the Swedish Army. Within six months, the Swedish occupiers surrender. July 18 – Prince Leopold of the House of Habsburg, son of the late Ferdinand III, is elected as the new Holy Roman Emperor. July 31 – After Shah Jahan completes the Taj Mahal, his son Aurangzeb deposes him as ruler of the Mughal Empire. July – Šarhūda's Manchu fleet annihilates Onufriy Stepanov's Russian flotilla, on the Amur River. August 1 – The coronation of Leopold I takes place in Frankfurt. August 5 – Just six months after winning territory from Denmark-Norway in war and subsequent treaty, Sweden's King Charles X Gustav declares a second war against Denmark. By August 11, the King's troops have surrounded Denmark's capital, Copenhagen, while the Swedish Navy blocks the harbor to prevent the city from being resupplied, and begins bombardment. August 14 – The League of the Rhine (Rheinische Allianz) is formed by 50 German princes whose cities are on the Rhine river. September 3 – Oliver Cromwell dies and his son Richard assumes his father's position as Lord Protector of England, Scotland and Ireland. September 17 – Portuguese Restoration War: In the Battle of Vilanova, a Spanish army, having crossed the Minho, defeats the Portuguese. October 7 – The Netherlands enters the Dano-Swedish War to come to the rescue of Denmark, sending a 45-ship fleet from Vlie. October 29 – The 45-ship fleet of the Netherlands arrives at Denmark and begins its counterattack on Sweden's army and navy with three squadrons. November 6 – The Mexican Inquisition carries out the execution, by public burning, of 14 men convicted of homosexuality, while another 109 arrested are either released or given less harsh sentences. November 8 (October 29 old style) – The Battle of the Sound takes place between the navies of the Dutch Republic (with 41 warships) and of Sweden (with 45) at the Øresund, a strait between Denmark and Sweden's newly-acquired territory, the former Danish island of Scania. The Dutch Republic is successful at breaking the Swedish Navy's blockade of Copenhagen, and Sweden is forced to retreat, bringing an end to the attempted conquest of Denmark. November 23 – The elaborate funeral of Lord Protector of England Oliver Cromwell (who had died on September 3 and was buried at Westminster Abbey two weeks later) is carried out in London. A little more than two years later (in January 1661), his body will be disinterred and his head severed and placed on a spike. December 11 – Abaza Hasan Pasha, an Ottoman provincial governor who is attempting to depose the Grand Vizier, wins a battle at the Turkish city of Ilgin, defeating loyalist forces led by Murtaza Pasha. The victory is the last for the rebels. Two months later (February 16, 1659) Abaza Hasan is assassinated after being invited to peace negotiations by the loyalists. December 20 – Representatives of the Russian Empire and the Swedish Empire sign the Treaty of Valiesar at the Valiesar Estate near Narva, part of modern-day Estonia. In return for ceasing hostilities between the two empires in the Second Northern War, Russia is allowed to keep captured territories in Livonia (part of modern-day Latvia) for a term of three years. December 25 – Polish and Danish forces defeat a Swedish Army in the Battle of Kolding in Denmark. December 30 – The Siege of Toruń ends almost six months after it started, with Poland recapturing the city from Sweden. Portuguese traders are expelled from Ceylon by Dutch invaders. The Dutch in the Cape Colony start to import slaves from India and South-East Asia (later from Madagascar). Mary of Modena January 9 – Nicolas Coustou, French artist (d. 1733)[3] January 17 – Samson Wertheimer, European rabbi (d. 1724) January 17 – Francis Seymour, 5th Duke of Somerset (d. 1678) February 18 – Charles-Irénée Castel de Saint-Pierre, French writer (d. 1743) March 5 – Antoine de la Mothe Cadillac, French explorer (d. 1730) March 8 – Thomas Trevor, 1st Baron Trevor, British Baron (d. 1730) March 23 – Jean-Baptiste Santerre, French painter (d. 1717) March 30 – Muro Kyūsō, Japanese Neo-Confucian scholar (d. 1734) April 11 – James Hamilton, 4th Duke of Hamilton, Scottish peer (d. 1712) April 19 – Johann Wilhelm, Elector Palatine, German noble (d. 1716) April 22 – Giuseppe Torelli, Italian violist, violinist, pedagogue and composer (d. 1709) May 30 – Sir Henry Furnese, 1st Baronet, English merchant and politician (d. 1712) June 10 – John March, Massachusetts businessman, colonel (d. 1712) June 11 – Victor Honoré Janssens, Flemish painter (d. 1736) June 22 – Louis VII, Landgrave of Hesse-Darmstadt (d. 1678) July 10 – Luigi Ferdinando Marsili, Italian soldier and naturalist (d. 1730) July 14 – Camillo Rusconi, Italian artist (d. 1728) July 17 – Diogo de Mendonça Corte-Real, Portuguese politician (d. 1736) July 21 – Alexis Littré, French physician and anatomist (d. 1726) July 25 – Archibald Campbell, 1st Duke of Argyll, Scottish privy councillor (d. 1703) July 28 – Roelof Diodati, Dutch Governor of Mauritius (d. 1723) August 1 – Pierre Joseph Garidel, French botanist (d. 1737) August 5 – Claude Audran III, French painter (d. 1734) August 10 – Susanne Maria von Sandrart, German engraver (d. 1716) August 11 – Sir Justinian Isham, 4th Baronet, English baronet and Member of Parliament (d. 1730) August 16 – Jan Frans van Son, Flemish Baroque painter (d. 1704) August 16 – Ralph Thoresby, British historian (d. 1725) August 18 – Jan František Beckovský, Czech historian (d. 1722) August 22 – John Ernest IV, Duke of Saxe-Coburg-Saalfeld (d. 1729) August 28 – Honoré Tournély, French theologian (d. 1729) September 1 – Jacques Bernard, French theologian and publicist (d. 1718) September 16 – John Dennis, English dramatist and critic (d. 1734) September 24 – Sir Robert Anstruther, 1st Baronet, Scottish politician (d. 1737) September 30 – Elisabeth Eleonore of Brunswick-Wolfenbüttel, Duchess consort of Saxe-Meiningen (d. 1729) October 2 – Nicholas Roosevelt (1658–1742), Dutch-American politician (d. 1742) October 5 – Mary of Modena, queen of James II of England (d. 1718) October 11 – Christian Heinrich Postel, German jurist (d. 1705) October 18 – Alexander of Courland, German prince (d. 1686) October 19 – Adolphus Frederick II, Duke of Mecklenburg-Strelitz (d. 1704) October 21 – Henri de Boulainvilliers, French nobleman (d. 1722) October 24 – Marko Gerbec, Carniolan physician, scientist (d. 1718) November 2 – Baptist Noel (MP), English politician (d. 1690) November 4 – Sulkhan-Saba Orbeliani, Georgian prince, writer, monk and author (d. 1725) November 21 – Johann Gottfried Roesner, Prussian burgomaster (d. 1724) November 27 – Tsarevna Catherine Alekseyevna of Russia, daughter of Tsar Alexis of Russia (d. 1718) November 27 – Hercule-Louis Turinetti, marquis of Prié (d. 1726) December 2 – Sir Thomas Roberts, 4th Baronet, English politician (d. 1706) December 10 – Lancelot Blackburne, Archbishop of York (d. 1743) date unknown – Elizabeth Barry, English actress (d. 1713) John Cleveland Witte Corneliszoon de With January 1 – Caspar Sibelius, Dutch Protestant minister (b. 1590) January 2 – Sir William Armine, 2nd Baronet, English politician (b. 1622) January 7 – Theophilus Eaton, English-born Connecticut colonist (b. 1590) January 13 – Edward Sexby, English Puritan soldier (b. 1616) February 19 – Henry Wilmot, 1st Earl of Rochester (b. 1612) March 25 – Herman IV, Landgrave of Hesse-Rotenburg (b. 1607) February 27 – Adolf Frederick I, Duke of Mecklenburg-Schwerin (1592–1628 and again 1631–1658) (b. 1588) March 29 – Bertuccio Valiero, Doge of Venice (b. 1596) April 7 – Juan Eusebio Nieremberg, Spanish mystic (b. 1595) April 19 Kirsten Munk, second wife of Christian IV of Denmark (b. 1598) Robert Rich, 2nd Earl of Warwick, English colonial administrator and admiral (b. 1587) April 24 – Francesco Maria Richini, Italian architect (b. 1584) April 29 – John Cleveland, English poet (b. 1613) May 20 – Bartholomew Holzhauser, German priest, visionary and writer of prophecies (b. 1613) June 18 – Louis Cappel, French Protestant churchman and scholar (b. 1585) June 8 – Sir Henry Slingsby, 1st Baronet, English baronet (b. 1602) June 27 – Ercole Gennari, Italian drawer and painter (b. 1597) July 22 – Frederick, Duke of Schleswig-Holstein-Sønderburg-Norburg (b. 1581) August 5 – Gundakar, Prince of Liechtenstein, court official in Vienna (b. 1580) August 6 – Elizabeth Claypole, daughter of Oliver Cromwell (b. 1629) August 19 – Christine of Hesse-Kassel, Duchess of Saxe-Eisenach and Saxe-Coburg (b. 1578) September 3 – Oliver Cromwell, Lord Protector of England, Scotland, and Ireland (b. 1599) September 17 – Kaspar von Barth, German philologist and writer (b. 1587) September 22 – Georg Philipp Harsdörffer, German poet (b. 1607) October 14 – Francesco I d'Este, Duke of Modena, Italian noble (b. 1610) October 23 – Thomas Pride, Parliamentarian general in the English Civil War November 4 – Antoine Le Maistre, French Jansenist (b. 1608) November 6 – Pierre du Ryer, French dramatist (b. 1606) November 7 – Maeda Toshitsune, Japanese warlord (b. 1594) November 8 – Witte de With, Dutch naval officer (b. 1599) November 26 – Duke Francis Henry of Saxe-Lauenburg (b. 1604) November 29 – Margrave Charles Magnus of Baden-Durlach (b. 1621) December 6 – Baltasar Gracián y Morales, Spanish writer (b. 1601) December 15 – Carlo Emanuele Madruzzo, Italian prince-bishop (b. 1599) December 20 – Jean Jannon, French typefounder (b. 1580) Date unknown: Osoet Pegua, Thai businesswoman (b. 1615) ^ "killing". Oxford Reference. Retrieved December 14, 2021. ^ Brems, Hans (June 1970). "Sweden: From Great Power to Welfare State". Journal of Economic Issues. 4 (2, 3). Association for Evolutionary Economics: 1–16. doi:10.1080/00213624.1970.11502941. JSTOR 4224039. A swift and brilliantly conceived march from Holstein across the frozen Danish waters on Copenhagen, by Karl X Gustav in 1658, finally wrests Bohuslin, Sk'ane, and Blekinge from Denmark-Norway. Denmark no longer controls both sides of Oresund, and Swedish power is at its peak. ^ "Nicolas Coustou | French sculptor | Britannica". www.britannica.com. Retrieved December 14, 2021. Retrieved from " 3One hundred years, from 1501 to 1600 This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "16th century" – news · newspapers · books · scholar · JSTOR (September 2022) (Learn how and when to remove this message) Millennia 2nd millennium Centuries

15th century 16th century 17th century Timelines 15th century 16th century 17th century State leaders 15th century 16th century 17th century Decades 1500s 1510s 1520s 1530s 1540s 1550s 1560s 1570s 1580s 1590s Categories: Births – Deaths Establishments – Disestablishments vte The world map by the Italian Amerigo Vespucci (from whose name the word America is derived) and Belgian Gerardus Mercator shows (besides the classical continents Europe, Africa, and Asia) the Americas as America sive India Nova', New Guinea, and other islands of Southeast Asia, as well as a hypothetical Arctic continent and a yet undetermined Terra Australis.[1]The 16th century began with the Julian year 1501 (represented by the Roman numerals MDI) and ended with either the Julian or the Gregorian year 1600 (MDC), depending on the reckoning used (the Gregorian calendar introduced a lapse of 10 days in October 1582).[1] The Renaissance in Italy and Europe saw the emergence of important artists, authors and scientists, and led to the foundation of important subjects which include accounting and political science. Copernicus proposed the heliocentric universe, which was met with strong resistance, and Tycho Brahe refuted the theory of celestial spheres through observational measurement of the 1572 appearance of a Milky Way supernova. These events directly challenged the long-held notion of an immutable universe supported by Ptolemy and Aristotle, and led to major revolutions in astronomy and science. Galileo Galilei became a champion of the new sciences, invented the first thermometer and made substantial contributions in the fields of physics and astronomy, becoming a major figure in the Scientific Revolution in Europe. Spain and Portugal colonized large parts of Central and South America, followed by France and England in Northern America and the Lesser Antilles. The Portuguese became the masters of trade between Brazil, the coasts of Africa, and their possessions in the Indies, whereas the Spanish came to dominate the Greater Antilles, Mexico, Peru, and opened trade across the Pacific Ocean, linking the Americas with the Indies. English and French privateers began to practice persistent theft of Spanish and Portuguese treasures. This era of colonialism established mercantilism as the leading school of economic thought, where the economic system was viewed as a zero-sum game in which any gain by one party required a loss by another. The mercantilist doctrine encouraged the many intra-European wars of the period and arguably fueled European expansion and imperialism throughout the world until the 19th century or early 20th century. The Reformation in central and northern Europe gave a major blow to the authority of the papacy and the Catholic Church. In England, the British-Italian Alberico Gentili wrote the first book on public international law and divided secularism from canon law and Catholic theology. European politics became dominated by religious conflicts, with the groundwork for the epochal Thirty Years' War being laid towards the end of the century. In the Middle East, the Ottoman Empire continued to expand, with the sultan taking the title of caliph, while dealing with a resurgent Persia. Iran and Iraq were caught by a major popularity of the Shia sect of Islam under the rule of the Safavid dynasty of warrior-mystics, providing grounds for a Persia independent of the majority-Sunni Muslim world.[2] In the Indian subcontinent, following the defeat of the Delhi Sultanate and Vijayanagara Empire, new powers emerged, the Sur Empire founded by Sher Shah Suri, Deccan sultanates, Rajput states, and the Mughal Empire[3] by Emperor Babur, a direct descendant of Timur and Genghis Khan.[4] His successors Humayun and Akbar, enlarged the empire to include most of South Asia. Japan suffered a severe civil war at this time, known as the Sengoku period, and emerged from it as a unified nation under Toyotomi Hideyoshi. China was ruled by the Ming dynasty, which was becoming increasingly isolationist, coming into conflict with Japan over the control of Korea as well as Japanese pirates. In Africa, Christianity had begun to spread in Central Africa and Southern Africa. Until the Scramble for Africa in the late 19th century, most of Africa was left uncolonized. For timelines of earlier events, see 15th century and Timeline of the Middle Ages. Main article: 1500s Mona Lisa, by Leonardo da Vinci, c. 1503–1506, one of the world's best-known paintings 1501: Michelangelo returns to his native Florence to begin work on the statue David. 1501: Safavid dynasty reunifies Iran and rules over it until 1736. Safavids adopt a Shia branch of Islam.[5] 1501: First Battle of Cannanore between the Third Portuguese Armada and Kingdom of Cochin under João da Nova and Zamorin of Kozhikode's navy marks the beginning of Portuguese conflicts in the Indian Ocean. 1502: First reported African slaves in the New World 1502: The Crimean Khanate sacks Sarai in the Golden Horde, ending its existence. 1503: Spain defeats France at the Battle of Cerignola. Considered to be the first battle in history won by gunpowder small arms. 1503: Leonardo da Vinci begins painting the Mona Lisa and completes it three years later. 1503: Nostradamus is born on either December 14 or December 21. 1504: A period of drought, with famine in all of Spain. 1504: Death of Isabella I of Castile; Joanna of Castile becomes the Queen. 1504: Foundation of the Sultanate of Sennar by Amara Dunqas, in what is modern Sudan 1505: Zhengde Emperor ascends the throne of Ming dynasty. 1505: Martin Luther enters St. Augustine's Monastery at Erfurt, Germany, on 17 July and begins his journey to instigating the Reformation. 1505: Sultan Trenggono builds the first Muslim kingdom in Java, called Demak, in Indonesia. Many other small kingdoms were established in other islands to fight against Portuguese. Each kingdom introduced local language as a way of communication and unity. 1506: Leonardo da Vinci completes the Mona Lisa. 1506: King Afonso I of Kongo wins the battle of Mbanza Kongo, resulting in Catholicism becoming Kongo's state religion.Battle of Cerignola: El Gran Capitan finds the corpse of Louis d'Armagnac, Duke of Nemours 1506: At least two thousand converted Jews are massacred in a Lisbon riot, Portugal. 1506: Christopher Columbus dies in Valladolid, Spain. 1506: Poland is invaded by Tatars from the Crimean Khanate. 1507: The first recorded epidemic of smallpox in the New World on the island of Hispaniola. It devastates the native Taíno population.[6] 1507: Afonso de Albuquerque conquered Hormuz and Muscat, among other bases in the Persian Gulf, taking control of the region at the entrance of the Gulf. 1508: The Christian-Islamic power struggle in Europe and West Asia spills over into the Indian Ocean as Battle of Chaul during the Portuguese-Mamluk War 1508–1512: Michelangelo paints the Sistine Chapel ceiling. 1509: The defeat of joint fleet of the Sultan of Gujarat, the Mamlûk Burji Sultanate of Egypt, and the Zamorin of Calicut with support of the Republic of Venice and the Ottoman Empire in Battle of Diu marks the beginning of Portuguese dominance of the Spice trade and the Indian Ocean. 1509: The Portuguese king sends Diogo Lopes de Sequeira to find Malacca, the eastern terminus of Asian trade. After initially receiving Sequeira, Sultan Mahmud Shah captures and/or kills several of his men and attempts an assault on the four Portuguese ships, which escape.[7] The Javanese fleet is also destroyed in Malacca. 1509: Krishnadevaraya ascends the throne of Vijayanagara Empire. Main article: 1510s Afonso de Albuquerque 1509–1510: The 'great plague' in various parts of Tudor England.[8] 1510: Afonso de Albuquerque of Portugal conquers Goa in India. 1511: Afonso de Albuquerque of Portugal conquers Malacca, the capital of the Sultanate of Malacca in present-day Malaysia. 1512: Copernicus writes Commentariolus, and proclaims the Sun the center of the Solar System. 1512: The southern part (historical core) of the Kingdom of Navarre is invaded by Castile and Aragon. 1512: Qutb Shahi dynasty, founded by Quli Qutb Mulk, rules Golconda Sultanate until 1687. 1512: The first Portuguese exploratory expedition was sent eastward from Malacca (in present-day Malaysia) to search for the 'Spice Islands' (Maluku) led by Francisco Serrão. Serrão is shipwrecked but struggles on to Hitu (northern Ambon) and wins the favour of the local rulers.[9] 1513: Machiavelli writes The Prince, a treatise about political philosophy 1513: The Portuguese mariner Jorge Álvares lands at Macau, China, during the Ming dynasty. 1513: Henry VIII defeats the French at the Battle of the Spurs. 1513: The Battle of Flodden Field in which invading Scots are defeated by Henry VIII's forces. 1513: Sultan Selim I ("The Grim") orders the massacre of Shia Muslims in Anatolia (present-day Turkey). 1513: Vasco Núñez de Balboa, in service of Spain arrives at the Pacific Ocean (which he called Mar del Sur) across the Isthmus of Panama. He was the first European to do so. 1514: The Battle of Orsha halts Muscovy's expansion into Eastern Europe. 1514: Dózsa rebellion (peasant revolt) in Hungary.Martin Luther initiated the Reformation with his Ninety-five Theses in 1517. 1514: The Battle of Chaldiran, the Ottoman Empire gains decisive victory against Safavid dynasty. 1515: Ascension of Francis I of France as King of France following the death of Louis XII. 1515: The Ottoman Empire wrests Eastern Anatolia from the Safavids after the Battle of Chaldiran. 1515: The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516–1517: The Ottomans defeat the Mamluks and gain control of Egypt, Arabia, and the Levant. 1517: The Sweating sickness epidemic in Tudor England.[10] 1517: The Reformation begins when Martin Luther posts his Ninety-five Theses in Saxony. 1518: The Treaty of London was a non-aggression pact between the major European nations. The signatories were Burgundy, France, England, the Holy Roman Empire, the Netherlands, the Papal States and Spain, all of whom agreed not to attack one another and to come to the aid of any that were under attack. 1518: Mir Chakar Khan Rind leaves Baluchistan and settles in Punjab. 1518: Leo Africanus, also known as al-Hasan ibn Muhammad al-Wazzan al-Fasi, an Andalusian Berber diplomat who is best known for his book Descrittione dell'Africa (Description of Africa), is captured by Spanish pirates; he is taken to Rome and presented to Pope Leo X. 1518: The dancing plague of 1518 begins in Strasbourg, lasting for about one month. 1519: Leonardo da Vinci dies of natural causes on May 2.Europe at the time of the accession of Charles V in 1519 1519: Wang Yangming, the Chinese philosopher and governor of Jiangxi province, describes his intent to use the firepower of the fo-lang-ji, a breech-loading Portuguese culverin, in order to suppress the rebellion of Prince Zhu Chenhao. 1519: Barbary pirates led by Hayreddin Barbarossa, a Turk appointed to ruling position in Algiers by the Ottoman Empire, raid Provence and Toulon in southern France. 1519: Death of Emperor Maximilian; Charles I of Austria, Spain, and the Low Countries becomes Emperor of Holy Roman Empire as Charles V, Holy Roman Emperor (ruled until 1556). 1519–1522: Spanish expedition commanded by Magellan and Elcano are the first to Circumnavigate the Earth. 1519–1521: Hernán Cortés leads the Spanish conquest of the Aztec Empire. Main article: 1520s Ferdinand Magellan led the first expedition that circumnavigated the globe in 1519–1522. 1520–1566: The reign of Suleiman the Magnificent marks the zenith of the Ottoman Empire. 1520: The first European diplomatic mission to Ethiopia, sent by the Portuguese, arrives at Massawa 9 April, and reaches the imperial encampment of Emperor Dawit II in Shewa 9 October. 1520: Vijayanagara Empire forces under Krishnadevaraya defeat the Adil Shahi under at the Battle of Raichur 1520: Sultan Ali Mughayat Shah of Aceh begins an expansionist campaign capturing Daya on the west Sumatran coast (in present-day Indonesia), and the pepper and gold producing lands on the east coast. 1520: The Portuguese established a trading post in the village of Lamakera on the eastern side of Solor (in present-day Indonesia) as a transit harbour between Maluku and Malacca. 1521: Belgrade (in present-day Serbia) is captured by the Ottoman Empire. 1521: After building fortifications at Tuen Mun, the Portuguese attempt to invade Ming dynasty China, but are expelled by Chinese naval forces. 1521: Philippines encountered by Ferdinand Magellan. He was later killed in the Battle of Mactan in central Philippines in the same year. 1521: Jiajing Emperor ascended the throne of Ming dynasty, China. 1521: November, Ferdinand Magellan's expedition reaches Maluku (in present-day Indonesia) and after trade with Ternate returns to Europe with a load of cloves. 1521: Pati Unus leads the invasion of Malacca (in present-day Malaysia) against the Portuguese occupation. Pati Unus was killed in this battle, and was succeeded by his brother, sultan Trenggana. 1522: Rhodes falls to the Ottomans of Suleiman the Magnificent.[11]Sack of Rome of 1527 by Charles V's forces (painting by Johannes Lingelbach) 1522: The Portuguese ally themselves with the rulers of Ternate (in present-day Indonesia) and begin construction of a fort.[9] 1522: August, Luso-Sundanese Treaty signed between Portugal and Sunda Kingdom granted Portuguese permit to build fortress in Sunda Kelapa. 1523: Sweden gains independence from the Kalmar Union. 1523: The Cacao bean is introduced to Spain by Hernán Cortés 1524–1525: German Peasants' War in the Holy Roman Empire. 1524: Giovanni da Verrazzano is the first European to explore the Atlantic coast of North America between South Carolina and Newfoundland. 1524: Ismail I, the founder of Safavid dynasty, dies and Tahmasp I becomes king.Gun-wielding Ottoman Janissaries and defending Knights of Saint John at the siege of Rhodes in 1522, from an Ottoman manuscript 1525: Timurid Empire forces under Babur defeat the Lodi dynasty at the First Battle of Panipat, end of the Delhi Sultanate. 1525: German and Spanish forces defeat France at the Battle of Pavia, Francis I of France is captured. 1526: The Ottomans defeat the Kingdom of Hungary at the Battle of Mohács. 1526: Mughal Empire, founded by Babur. 1527: Sack of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome considered the end of the Italian Renaissance. 1527: Protestant Reformation begins in Sweden. 1527: The last ruler of Majapahit falls from power. This state (located in present-day Indonesia) was finally extinguished at the hands of the Demak. A large number of courtiers, artisans, priests, and members of the royalty moved east to the island of Bali; however, the power and the seat of government transferred to Demak under the leadership of Pangeran, later Sultan Fatah. 1527: June 22, The Javanese Prince Fatahillah of the Cirebon Sultanate successfully defeated the Portuguese armed forces at the site of the Sunda Kelapa Harbor. The city was then renamed Jayakarta, meaning "a glorious victory." This eventful day came to be acknowledged as Jakarta's Founding Anniversary. 1527: Mughal Empire forces defeat the Rajput led by Rana Sanga of Mewar at the Battle of Khanwa 1529: The Austrians defeat the Ottoman Empire at the siege of Vienna. 1529: Treaty of Zaragoza defined the antimeridian of Tordesillas attributing the Moluccas to Portugal and Philippines to Spain. 1529: Imam Ahmad Gurey defeats the Ethiopian Emperor Dawit II in the Battle of Shimbra Kure, the opening clash of the Ethiopian–Adal War. Main article: 1530s Spanish conquistadors with their Tlaxcallan allies fighting against the Otomies of Metztitlan in present-day Mexico, a 16th-century codex 1531–1532: The Church of England breaks away from the Catholic Church and recognizes King Henry VIII as the head of the Church. 1531: The Inca Civil War is fought between the two brothers, Atahualpa and Huáscar. 1532: Francisco Pizarro leads the Spanish conquest of the Inca Empire. 1532: Foundation of São Vicente, the first permanent Portuguese settlement in the Americas. 1533: Anne Boleyn becomes Queen of England. 1533: Elizabeth Tudor is born. 1534: Jacques Cartier claims Canada for France. 1534: The Ottomans capture Baghdad from the Safavids. 1534: Affair of the Placards, where King Francis I becomes more active in repression of French Protestants. 1535: The Münster Rebellion, an attempt of radical, millennialist, Anabaptists to establish a theocracy, ends in bloodshed. 1535: The Portuguese in Ternate depose Sultan Tabariji (or Tabarija) and send him to Portuguese Goa where he converts to Christianity and bequeaths his Portuguese godfather Jordao de Freitas the island of Ambon.[12] Hairun becomes the next sultan. 1536: Catherine of Aragon dies in Kimbolton Castle, in England.Territorial expansion of the Ottoman Empire under Suleiman (in red and orange) 1536: In England, Anne Boleyn is beheaded for adultery and treason. 1536: Establishment of the Inquisition in Portugal. 1536: Foundation of Buenos Aires (in present-day Argentina) by Pedro de Mendoza. 1537: The Portuguese establish Recife in Pernambuco, north-east of Brazil. 1537: William Tyndale's partial translation of the Bible into English is published, which would eventually be incorporated into the King James Bible. 1538: Gonzalo Jiménez de Quesada founds Bogotá. 1538: Spanish–Venetian fleet is defeated by the Ottoman Turks at the Battle of Preveza. 1539: Hernando de Soto explores inland North America. Main article: 1540s Nicolaus Copernicus 1540: The Society of Jesus, or the Jesuits, is founded by Ignatius of Loyola and six companions with the approval of Pope Paul III. 1540: Sher Shah Suri founds the Suri dynasty in South Asia, an ethnic Pashtun (Pathan) of the house of Sur, who supplanted the Mughal dynasty as rulers of North India during the reign of the relatively ineffectual second Mughal emperor Humayun. Sher Shah Suri decisively defeats Humayun in the Battle of Bilgram (May 17, 1540). 1541: Pedro de Valdivia founds Santiago in Chile. 1541: An Algerian military campaign by Charles V of Spain (Habsburg) is unsuccessful. 1541: Amazon River is encountered and explored by Francisco de Orellana. 1541: Capture of Buda and the absorption of the major part of Hungary by the Ottoman Empire. 1541: Sahib I Giray of Crimea invades Russia. 1542: The Italian War of 1542–1546 War resumes between Francis I of France and Emperor Charles V. This time Henry VIII is allied with the Emperor, while James V of Scotland and Sultan Suleiman I are allied with the French. 1542: Akbar The Great is born in the Rajput Umarkot Fort 1542: Spanish explorer Ruy López de Villalobos named the island of Samar and Leyte Las Islas Filipinas honoring Philip II of Spain and became the official name of the archipelago. 1543: Ethiopian/Portuguese troops defeat the Adal army led by Imam Ahmad Gurey at the Battle of Wayna Daga; Imam Ahmad Gurey is killed at this battle. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1543: The Nanban trade period begins after Portuguese traders make contact with Japan. 1544: The French defeat an Imperial–Spanish army at the Battle of Ceresole.Scenes of everyday life in Ming China, by Qiu Ying 1544: Battle of the Shirts in Scotland. The Frasers and Macdonalds of Clan Ranald fight over a disputed chiefship; reportedly, 5 Frasers and 8 Macdonalds survive. 1545: Songhai forces sack the Malian capital of Niani 1545: The Council of Trent meets for the first time in Trent (in northern Italy). 1546: Michelangelo Buonarroti is made chief architect of St. Peter's Basilica. 1546: Francis Xavier works among the peoples of Ambon, Ternate and Morotai (Moro) laying the foundations for a permanent mission. (to 1547) 1547: Henry VIII dies in the Palace of Whitehall on 28 January at the age of 55. 1547: Francis I dies in the Château de Rambouillet on 31 March at the age of 52. 1547: Edward VI becomes King of England and Ireland on 28 January and is crowned on 20 February at the age of 9. 1547: Emperor Charles V decisively dismantles the Schmalkaldic League at the Battle of Mühlberg. 1547: Grand Prince Ivan the Terrible is crowned tsar of (All) Russia, thenceforth becoming the first Russian tsar. 1548: Battle of Uedahara: Firearms are used for the first time on the battlefield in Japan, and Takeda Shingen is defeated by Murakami Yoshikiyo. 1548: Askia Daoud, who reigned from 1548 to 1583, establishes public libraries in Timbuktu (in present-day Mali). 1548: The Ming dynasty government of China issues a decree banning all foreign trade and closes down all seaports along the coast; these Hai jin laws came during the Wokou wars with Japanese pirates. 1549: Tomé de Sousa establishes Salvador in Bahia, north-east of Brazil. 1549: Arya Penangsang with the support of his teacher, Sunan Kudus, avenges the death of Raden Kikin by sending an envoy named Rangkud to kill Sunan Prawoto by Keris Kyai Satan Kober (in present-day Indonesia). Main article: 1550s The Islamic gunpowder empires: Mughal Army artillerymen during the reign of Jalaluddin Akbar 1550: The architect Mimar Sinan builds the Süleymaniye Mosque in Istanbul. 1550: Mongols led by Altan Khan invade China and besiege Beijing. 1550–1551: Valladolid debate concerning the human rights of the Indigenous people of the Americas. 1551: Fifth outbreak of sweating sickness in England. John Caius of Shrewsbury writes the first full contemporary account of the symptoms of the disease. 1551: North African pirates enslave the entire population of the Maltese island Gozo, between 5,000 and 6,000, sending them to Libya. 1552: Russia conquers the Khanate of Kazan in central Asia. 1552: Jesuit China Mission, Francis Xavier dies. 1553: Mary Tudor becomes the first queen regnant of England and restores the Church of England under Papal authority. 1553: The Portuguese found a settlement at Macau. 1554: Missionaries José de Anchieta and Manuel da Nóbrega establishes São Paulo, southeast Brazil. 1554: Princess Elizabeth is imprisoned in the Tower of London upon the orders of Mary I for suspicion of being involved in the Wyatt rebellion. 1555: The Muscovy Company is the first major English joint stock trading company. 1556: Publication in Venice of Delle Navigiationi et Viaggi (terzo volume) by Giovanni Battista Ramusio, secretary of Council of Ten, with plan La Terra de Hochelaga, an illustration of the Hochelaga.[13] 1556: The Shaanxi earthquake in China is history's deadliest known earthquake during the Ming dynasty. 1556: Georgius Agricola, the "Father of Mineralogy", publishes his De re metallica. 1556: Akbar defeats Hemu at the Second battle of Panipat. 1556: Russia conquers the Astrakhan Khanate. 1556–1605: During his reign, Akbar expands the Mughal Empire in a series of conquests (in the Indian subcontinent).Political map of the world in 1556 1556: Mir Chakar Khan Rind captures Delhi with Humayun. 1556: Pomponio Algerio, radical theologian, is executed by boiling in oil as part of the Roman Inquisition. 1557: Habsburg Spain declares bankruptcy. Philip II of Spain had to declare four state bankruptcies in 1557, 1560, 1575 and 1596. 1557: The Portuguese settle in Macau (on the western side of the Pearl River Delta across from present-day Hong Kong). 1557: The Ottomans capture Massawa, all but isolating Ethiopia from the rest of the world. 1558: Elizabeth Tudor becomes Queen Elizabeth I at age 25. 1558–1603: The Elizabethan era is considered the height of the English Renaissance. 1558–1583: Livonian War between Poland, Grand Principality of Lithuania, Sweden, Denmark and Russia. 1558: After 200 years, the Kingdom of England loses Calais to France. 1559: With the Peace of Cateau Cambrésis, the Italian Wars conclude. 1559: Sultan Hairun of Ternate (in present-day Indonesia) protests the Portuguese's Christianisation activities in his lands. Hostilities between Ternate and the Portuguese. Main article: 1560s The Mughal Emperor Akbar shoots the Rajput warrior Jaimal during the Siege of Chittorgarh in 1567 1560: Ottoman navy defeats the Spanish fleet at the Battle of Djerba. 1560: Elizabeth Bathory is born in Nyirbator, Hungary. 1560: By winning the Battle of Okehazama, Oda Nobunaga becomes one of the pre-eminent warlords of Japan. 1560: Jeanne d'Albret declares Calvinism the official religion of Navarre. 1560: Lazarus Church, Macau 1561: Sir Francis Bacon is born in London. 1561: The fourth battle of Kawanakajima between the Uesugi and Takeda at Hachimanbara takes place. 1561: Guido de Bres draws up the Belgic Confession of Protestant faith. 1562: Mughal emperor Akbar reconciles the Muslim and Hindu factions by marrying into the powerful Rajput Hindu caste. 1562–1598: French Wars of Religion between Catholics and Huguenots. 1562: Massacre of Wassy and Battle of Dreux in the French Wars of Religion. 1562: Portuguese Dominican priests build a palm-trunk fortress which Javanese Muslims burned down the following year. The fort was rebuilt from more durable materials and the Dominicans commenced the Christianisation of the local population.[12] 1563: Plague outbreak claimed 80,000 people in Elizabethan England. In London alone, over 20,000 people died of the disease. 1564: Galileo Galilei born on February 15 1564: William Shakespeare baptized 26 April 1565: Deccan sultanates defeat the Vijayanagara Empire at the Battle of Talikota. 1565: Mir Chakar Khan Rind dies at aged 97. 1565: Estácio de Sá establishes Rio de Janeiro in Brazil. 1565: The Hospitallers, a Crusading Order, defeat the Ottoman Empire at the siege of Malta (1565). 1565: Miguel López de Legazpi establishes in Cebu the first Spanish settlement in the Philippines starting a period of Spanish colonization that would last over three hundred years. 1565: Spanish navigator Andres de Urdaneta discovers the maritime route from Asia to the Americas across the Pacific Ocean, also known as the tornaviaje. 1565: Royal Exchange is founded by Thomas Gresham. 1566: Suleiman the Magnificent, ruler of the Ottoman Empire, dies on September 7, during the battle of Szigetvar.Siege of Valenciennes during the Dutch War of Independence in 1567 1566–1648: Eighty Years' War between Spain and the Netherlands. 1566: Da le Balle Contrade d'Oriente, composed by Cipriano de Rore. 1567: After 45 years' reign, Jiajing Emperor died in the Forbidden City, Longqing Emperor ascended the throne of Ming dynasty. 1567: Mary, Queen of Scots, is imprisoned by Elizabeth I. 1568: The Transylvanian Diet, under the patronage of the prince John Sigismund Zápolya, the former king of Hungary, inspired by the teachings of Ferenc Dávid, the founder of the Unitarian Church of Transylvania, promulgates the Edict of Torda, the first law of freedom of religion and of conscience in the World. 1568–1571: Morisco Revolt in Spain. 1568–1600: The Azuchi-Momoyama period in Japan. 1568: Hadiwijaya sent his adopted son and son in-law Sutawijaya, who would later become the first ruler of the Mataram dynasty of Indonesia, to kill Arya Penangsang. 1569: Rising of the North in England. 1569: Mercator 1569 world map published by Gerardus Mercator. 1569: The Polish–Lithuanian Commonwealth is created with the Union of Lublin which lasts until 1795. 1569: Peace treaty signed by Sultan Hairun of Ternate and Governor Lopez De Mesquita of Portugal. Main article: 1570s The Battle of Lepanto 1570: Ivan the Terrible, tsar of Russia, orders the massacre of inhabitants of Novgorod. 1570: Pope Pius V issues Regnans in Excelsis, a papal bull excommunicating all who obeyed Elizabeth I and calling on all Catholics to rebel against her. 1570: Sultan Hairun of Ternate (in present-day Indonesia) is killed by the Portuguese.[12] Babullah becomes the next Sultan. 1570: 20,000 inhabitants of Nicosia in Cyprus were massacred and every church, public building, and palace was looted. Cyprus fell to the Ottoman Turks the following year. 1571: Pope Pius V completes the Holy League as a united front against the Ottoman Turks, responding to the fall of Cyprus to the Ottomans. 1571: The Spanish-led Holy League navy destroys the Ottoman Empire navy at the Battle of Lepanto. 1571: Crimean Tatars attack and sack Moscow, burning everything but the Kremlin. 1571: American Indians kill Spanish missionaries in what would later be Jamestown, Virginia. 1571: Spanish conquistador Miguel López de Legazpi establishes Manila, Philippines as the capital of the Spanish East Indies. 1572: Brielle is taken from Habsburg Spain by Protestant Watergeuzen in the Capture of Brielle, in the Eighty Years' War. 1572: Spanish conquistadores apprehend the last Inca leader Tupak Amaru at Vilcabamba, Peru, and execute him in Cuzco. 1572: Jeanne d'Albret dies aged 43 and is succeeded by Henry of Navarre. 1572: Catherine de' Medici instigates the St. Bartholomew's Day massacre which takes the lives of Protestant leader Gaspard de Coligny and thousands of Huguenots. The violence spreads from Paris to other cities and the countryside. 1572: First edition of the epic The Lusiads of Luís Vaz de Camões, three years after the author returned from the East.[14] 1572: The 9 years old Taizi, Zhu Yijun ascended the throne of Ming dynasty, known as Wanli Emperor. 1573: After heavy losses on both sides the siege of Haarlem ends in a Spanish victory.St. Bartholomew's Day massacre of French Protestants 1574: in the Eighty Years' War the capital of Zeeland, Middelburg declares for the Protestants. 1574: After a siege of 4 months the siege of Leiden ends in a comprehensive Dutch rebel victory. 1575: Oda Nobunaga finally captures Nagashima fortress. 1575: Following a five-year war, the Ternateans under Sultan Babullah defeated the Portuguese. 1576: Tahmasp I, Safavid shah, dies. 1576: The Battle of Haldighati is fought between the ruler of Mewar, Maharana Pratap and the Mughal Empire's forces under Emperor Akbar led by Raja Man Singh. 1576: Sack of Antwerp by badly paid Spanish soldiers. 1577–1580: Francis Drake circles the world. 1577: Ki Ageng Pemanahan built his palace in Pasargede or Kotagede. 1578: King Sebastian of Portugal is killed at the Battle of Alcazarquivir. 1578: The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[12] 1578: Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso becomes the third Dalai Lama in the lineage.[15] 1578: Governor-General Francisco de Sande officially declared war against Brunei in 1578, starting the Castilian War of 1578. 1579: The Union of Utrecht unifies the northern Netherlands, a foundation for the later Dutch Republic. 1579: The Union of Arras unifies the southern Netherlands, a foundation for the later states of the Spanish Netherlands, the Austrian Netherlands and Belgium.The Irish Gaelic chieftain's feast, from The Image of Ireland 1579: The British navigator Sir Francis Drake passes through Maluku and transit in Ternate on his circumnavigation of the world. The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[16] Main article: 1580s The fall of Spanish Armada 1580: Drake's royal reception after his attacks on Spanish possessions influences Philip II of Spain to build up the Spanish Armada. English ships in Spanish harbours are impounded. 1580: Spain unifies with Portugal under Philip II. The struggle for the throne of Portugal ends the Portuguese Empire. The Spanish and Portuguese crowns are united for 60 years, i.e. until 1640. 1580–1587: Nagasaki comes under control of the Jesuits. 1581: Dutch Act of Abjuration, declaring abjuring allegiance to Philip II of Spain. 1581: Bayinnaung dies at the age of 65. 1582: Oda Nobunaga commits seppuku during the Honnō-ji Incident coup by his general, Akechi Mitsuhide. 1582: Pope Gregory XIII issues the Gregorian calendar. The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Gregorian calendar, Friday, 15 October 1582 1582: Yermak Timofeyevich conquers the Siberia Khanate on behalf of the Stroganovs. 1583: Denmark builds the world's first theme park, Bakken. 1583: Death of Sultan Babullah of Ternate. 1584–1585: After the siege of Antwerp, many of its merchants flee to Amsterdam. According to Luc-Normand Tellier, "At its peak, between 1510 and 1557, Antwerp concentrated about 40% of the world trade...It is estimated that the port of Antwerp was earning the Spanish crown seven times more revenues than the Americas."[17] 1584: Ki Ageng Pemanahan died. Sultan Pajang raised Sutawijaya, son of Ki Ageng Pemanahan as the new ruler in Mataram, titled "Loring Ngabehi Market" (because of his home in the north of the market). 1585: Akbar annexes Kashmir and adds it to the Kabul SubahPortuguese fusta in India from a book by Jan Huygen van Linschoten 1585: Colony at Roanoke founded in North America. 1585–1604: The Anglo-Spanish War is fought on both sides of the Atlantic. 1587: Mary, Queen of Scots is executed by Elizabeth I. 1587: The reign of Abbas I marks the zenith of the Safavid dynasty. 1587: Troops that would invade Pajang Mataram Sultanate storm ravaged the eruption of Mount Merapi. Sutawijaya and his men survived. 1588: Mataram into the kingdom with Sutawijaya as Sultan, titled "Senapati Ingalaga Sayidin Panatagama" means the warlord and cleric Manager Religious Life. 1588: England repulses the Spanish Armada. 1589: Spain repulses the English Armada. 1589: Catherine de' Medici dies at aged 69. Main articles: 1590s and 1600s Abu'l-Fazl ibn Mubarak presenting Akbarnama to Mughal Azam Akbar, Mughal miniature 1590: Siege of Odawara: the Go-Hojo clan surrender to Toyotomi Hideyoshi, and Japan is unified. 1591: Gazi Giray leads a huge Tatar expedition against Moscow. 1591: In Mali, Moroccan forces of the Sultan Ahmad al-Mansur led by Judar Pasha defeat the Songhai Empire at the Battle of Tondibi. 1592–1593: John Stow reports 10,675 plague deaths in London, a city of approximately 200,000 people. 1592–1598: Korea, with the help of Ming dynasty China, repels two Japanese invasions. 1593–1606: The Long War between the Habsburg monarchy and the Ottoman Turks. 1594: St. Paul's College, Macau, founded by Alessandro Valignano. 1595: First Dutch expedition to Indonesia sets sail for the East Indies with two hundred and forty-nine men and sixty-four cannons led by Cornelis de Houtman.[18] 1596: Birth of René Descartes. 1596: June, de Houtman's expedition reaches Banten the main pepper port of West Java where they clash with both the Portuguese and Indonesians. It then sails east along the north coast of Java losing twelve crew to a Javanese attack at Sidayu and killing a local ruler in Madura.[18] 1597: Romeo and Juliet is published. 1597: Cornelis de Houtman's expedition returns to the Netherlands with enough spices to make a considerable profit.[18] 1598: The Edict of Nantes ends the French Wars of Religion. 1598: Abbas I moves Safavids capital from Qazvin to Isfahan in 1598. 1598–1613: Russia descends into anarchy during the Time of Troubles. 1598: The Portuguese require an armada of 90 ships to put down a Solorese uprising.[12] (to 1599) 1598: More Dutch fleets leave for Indonesia and most are profitable.[18]Edo period screen depicting the Battle of Sekigahara 1598: The province of Santa Fe de Nuevo México is established in Northern New Spain. The region would later become a territory of Mexico, the New Mexico Territory in the United States, and the US State of New Mexico. 1598: Death of Toyotomi Hideyoshi, known as the unifier of Japan. 1599: The Mali Empire is defeated at the Battle of Jenné. 1599: The van Neck expedition returns to Europe. The expedition makes a 400 per cent profit.[18] (to 1600) 1599: March, Leaving Europe the previous year, a fleet of eight ships under Jacob van Neck was the first Dutch fleet to reach the 'Spice Islands' of Maluku.[18] 1600: Giordano Bruno is burned at the stake for heresy in Rome.Siege of Fiľakovo castle during the Long Turkish War 1600: Battle of Sekigahara in Japan. End of the Warring States period and beginning of the Edo period. 1600: The Portuguese win a major naval battle in the bay of Ambon.[19] Later in the year, the Dutch join forces with the local Hituese in an anti-Portuguese alliance, in return for which the Dutch would have the sole right to purchase spices from Hitu.[19] 1600: Elizabeth I grants a charter to the British East India Company beginning the English advance in Asia. 1600: Michael the Brave unifies the three principalities: Wallachia, Moldavia and Transylvania after the Battle of Șelimbăr from 1599. For later events, see Timeline of the 17th century. Polybius' The Histories translated into Italian, English, German and French.[20] Mississippian culture disappears. Medallion rug, variant Star Ushak style, Anatolia (modern Turkey), is made. It is now kept at the Saint Louis Art Museum. Hernan Cortes (1485–1547) Henry VIII, (1491–1547) King of England and Ireland Don Fernando Álvarez de Toledo (1507–1582) Suleiman the Magnificent, Sultan of the Ottoman Empire (1520–1566) Ivan IV the Terrible (1530–1584) Oda Nobunaga (1534–1582) Sir Francis Drake (c. 1540 – 1596) Alberico Gentili, (1552–1608) the Father of international law Philip II of Spain, King of Spain (1556–1598) Akbar the Great, Mughal emperor (1556–1605) Related article: List of 16th century inventions. The Columbian Exchange introduces many plants, animals and diseases to the Old and New Worlds. Introduction of the spinning wheel revolutionizes textile production in Europe. The letter J is introduced into the English alphabet. 1500: First portable watch is created by Peter Henlein of Germany.The Iberian Union in 1598, under Philip II, King of Spain and Portugal 1513: Juan Ponce de León sights Florida and Vasco Núñez de Balboa sights the eastern edge of the Pacific Ocean. 1519–1522: Ferdinand Magellan and Juan Sebastián Elcano lead the first circumnavigation of the world. 1519–1540: In America, Hernando de Soto expeditions map the Gulf of Mexico coastline and bays. 1525: Modern square root symbol (√) 1540: Francisco Vásquez de Coronado sights the Grand Canyon. 1541–42: Francisco de Orellana sails the length of the Amazon River. 1542–43: Firearms are introduced into Japan by the Portuguese. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1545: Theory of complex numbers is first developed by Gerolamo Cardano of Italy. 1558: Camera obscura is first used in Europe by Giambattista della Porta of Italy. 1559–1562: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes. 1565: Spanish settlers outside New Spain (Mexico) colonize Florida's coastline at St. Augustine. 1565: Invention of the graphite pencil (in a wooden holder) by Conrad Gesner. Modernized in 1812. 1568: Gerardus Mercator creates the first Mercator projection map. 1572: Supernova SN 1572 is observed by Tycho Brahe in the Milky Way. 1582: Gregorian calendar is introduced in Europe by Pope Gregory XIII and adopted by Catholic countries. c. 1583: Galileo Galilei of Pisa, Italy identifies the constant swing of a pendulum, leading to development of reliable timekeepers. 1585: earliest known reference to the 'sailing carriage' in China. 1589: William Lee invents the stocking frame. 1591: First flush toilet is introduced by Sir John Harrington of England, the design published under the title 'The Metamorphosis of Ajax'. 1593: Galileo Galilei invents a thermometer. 1596: William Barents discovers Spitsbergen. 1597: Opera in Florence by Jacopo Peri. Entertainment in the 16th century ^ a b Modern reference works on the period tend to follow the introduction of the Gregorian calendar for the sake of clarity; thus NASA's lunar eclipse catalogue states "The Gregorian calendar is used for all dates from 1582 Oct 15 onwards. Before that date, the Julian calendar is used." For dates after 15 October 1582, care must be taken to avoid confusion of the two styles. ^ de Vries, Jan (14 September 2009). "The limits of globalization in the early modern world". The Economic History Review. 63 (3): 710–733. CiteSeerX 10.1.1.186.2862. doi:10.1111/j.1468-0289.2009.00497.x. JSTOR 40929823. S2CID 219969360. SSRN 1635517. ^ Singh, Sarina; Lindsay Brown; Paul Clammer; Rodney Cocks; John Mock (2008). Pakistan & the Karakoram Highway. Vol. 7, illustrated. Lonely Planet. p. 137. ISBN 978-1-74104-542-0. Retrieved 23 August 2010. ^ Babur (2006). Babur Nama. Penguin Books. p. vii. 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View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Bagpipes (links | edit) List of decades, centuries, and millennia (links | edit) Fashion (links | edit) Giovanni Boccaccio (links | edit) History of Mali (links | edit) History of Mauritius (links | edit) Post office (links | edit) Snare drum (links | edit) Republican Party (United States) (links | edit) 20th century (links | edit) 15th century (links | edit) 17th century (links | edit) 18th century (links | edit) 1624 (links | edit) 1626 (links | edit) 1642 (links | edit) 1661 (links | edit) 1608 (links | edit) 1492 (links | edit) 14th century (links | edit) 1st century (links | edit) 13th century (links | edit) 4th century (links | edit) 12th century (links | edit) 11th century (links | edit) 1564 (links | edit) 1648 (links | edit) 1572 (links | edit) 1623 (links | edit) 1662 (links | edit) 1490s (links | edit) 1640s (links | edit) 1597 (links | edit) 1690 (links | edit) 1688 (links | edit) 7th century (links | edit) 10th century (links | edit) 9th century (links | edit) 8th century (links | edit) 6th century (links | edit) 5th century (links | edit) 3rd century (links | edit) 2nd century (links | edit) 1573 (links | edit) 1570s (links | edit) 1574 (links | edit) 1436 (links | edit) 1476 (links | edit) 1542 (links | edit) 1540s (links | edit) View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500) Retrieved from " WhatLinksHere/16th_century" How Brazil transformed itself and developed a special approach on to farming The wild fruit is packed with hard-shelled seeds and little pulp. Bats, along with monkeys and some other animals, eat the fruit and scatter the seeds. Bats, however, are by far the most effective seed dispersers. All those seeds mixed into too little pulp make wild bananas almost impossible for humans to eat. How do bananas spread? Farmers propagate banana plants through vegetative reproduction rather than seeds. These plants grow from thick, underground stems called rhizomes. The rhizome spreads and grows new buds and shoots near the base of the mature plant. How do bananas produce seeds? The banana seed contains the embryonic plant that will develop into a seedling. The formation of the seed is part of the process of sexual reproduction, which involves the fertilization of an ovule (located inside the portion of the female flower called the gynoecium) by pollen produced by male flowers. How do bananas multiply? The principal method of banana propagation by small-holder farmers is divison of suckers or pups which arise from the base of the main stem or from the underground corm. Farmers from different regions prefer different size suckers for optimal planting material. Very small pups are called buttons. Read more: Do Spiders Run Out Of Web?How do banana seeds germinate? To begin germinating the banana seeds, soak the seed in warm water for 24 to 48 hours to break the seed dormancy. This softens the seed coat, enabling the embryo to sprout more easily and rapidly. Can I grow a banana tree from a banana? You cannot grow a banana tree from a commercially cultivated banana fruit, but you can procure the seeds from a supplier to propagate a banana tree. Are the bananas we eat really bananas? Identical Bananas Around the Globe Despite their smooth texture, bananas actually do have small seeds inside, but they are commercially propagated through cuttings which means that all bananas are actually clones of each other. How do banana trees grow without seeds? Every season, the plant dies after its fruit is harvested, and the small bulbs (called the suckers) growing out of the plant's underground rhizome (called the corn) are then replanted, and new plants grow. Put simply, bananas don't have seeds because they don't need them. Why do banana trees only fruit once? Reasons for Banana Tree Dying After Bearing Fruit They rise up from a rhizome or corm. Once the plant has fruited, it dies back. This is when suckers, or infant banana plants, begin to grow from around the base of the parent plant. The aforementioned corm has growing points that turn into new suckers. What is the fruit that has no seed? There are many fruits or variations of fruits that are seedless, such as bananas, seedless grapes, blueberries, different guava varieties, oranges, watermelons, tomatoes, and many more. Seedless fruits can develop in one of two ways: they can develop without fertilization or they can develop after pollination. Read more: Are Gmo Fruits Healthy?Can bananas self propagate? Bananas, too, are parthenocarpic and produce fruit in the absence of successful fertilization. These bananas are asexually propagated. After the stalk has flowered and borne fruit, it dies. But there are side shoots or suckers at the base of the main stalk, which can be removed and replanted to continue the cultivar. Do banana trees only fruit once? After your banana harvest, cut your tree back to about 30 inches and let the stem dry out for two weeks before removing it. Banana stalks only produce fruit once, so it's important to cut them back for new fruit to grow. Ground-wise, it's important to keep the soil moist but not oversaturated. How many times does a banana tree bear fruit? Once a banana tree flowers and its fruit has been harvested, you may cut it down to the ground to make room for new, productive trees to grow up from the creeping underground stem. Each individual tree will only flower and bear fruit once. What happens if you plant a banana in your garden? Banana peels contain: calcium, which promotes root growth helps add oxygen to your soil. magnesium, which assists with photosynthesis. sulphur, which helps plants develop strong roots and repel pests. Can you start seeds in a banana? Yes, you can grow some bananas from seeds. Among the many wild banana cultivars that have seeds, Musa acuminata and Musa balbisiana are two of the species worth trying to germinate. They are parents of certain cultivated types. How long does a banana tree take to grow? Banana plants grow quickly and can reach their full height of 20-40 feet in only 9 months. After growing for about 6-8 months, the plant develops a nice crown of leaves. Then a flowering stem emerges from the top, and a large bud begins to develop. Read more: Where Do Walmart Organic Bananas Come From?How old does a banana tree have to be to produce bananas? It takes banana trees about 9 months to grow to full height, and only 12 months to bear their first fruit. On average, banana stalks last for about a year and a half to two years, but the plant that they stem from could last anywhere between 6 and 25 years. Should I remove banana pups? Like most fruit trees, a banana plant sends out suckers. With grafted fruit trees, it is recommended that you prune and discard the suckers, but banana plant suckers (called "pups") can be split from the parent plant and grown as new plants. Continue reading to learn how to divide a banana tree. Are there male and female banana trees? Male flowers have normal stamens that form normal pollen. The pollen functions in plant reproduction, but the male banana flowers never form banana fruits. Female flowers have an ovary that develops into a banana fruit (Figures 1, 3), but the stamens of female flowers do not make pollen. Do wild bananas still exist? Today, a colorful mix of wild bananas (including Banksii) still grow throughout the humid forests of New Guinea. However, as deforestation and fires decimate tropical and subtropical forests across the South Pacific, we risk losing both the ancestors and the possible future of the banana we know and love. What was the old banana called? There are many varieties of banana in the world, and until the later half of the 19th century, the dominant one was called the Gros Michel. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Banana trees do not have invasive root systems but can grow large very quickly. Banana tree roots will grow in a tight ball similar to palms but the roots will stay shallow. Banana trees that are 20 feet tall can survive on roots that are around 2 feet deep & if they start escape the pot they are soft and easy to cut off. Banana trees are a fast growing plant that will grow multiple stems from the root ball. Each stem can produce a bunch of bananas and after this can be cut off to be replaced by new stems. Each banana stem will only produce one crop. To keep your banana tree under control with a smaller root system leave it with three healthy stems and remove the rest. Once one of the stems has produced fruit, remove it an allow a new healthy stem to replace it. Banana trees can eventually break through large pots or tubs that they are grown in but their root ball will remain solid and the tree will still clump together. This banana tree has been growing in this tub for around 5 years. While banana trees do not have strong or invasive roots the main plant can spread over a larger area over time. Banana trees that start as a single stem can quickly reproduce with new stems forming on the outside of the root ball. Over time the tree will reach further out but is stopped by any hard surface or concrete barrier. My banana tree is planted right near a garden wall and will not grow any further. This banana tree does however continue to grow out towards the area without the wall and is becoming wider. Banana trees are easy to control as they have soft trunks and roots. I can remove stems and roots with a pruning saw if they start to grow in the wrong area. The stems will drip a sap which can stain clothes and your pruning saw so wash it off with warm soapy water. Keep the sap off your skin as it can be an irritant and quite sticky. Banana trees will grow back quickly after being pruned often reacting by sending up new shoots over the warmer months. These can be removed while they are small to keep the banana plant to three stems for a neat feature tree. Banana trees should be planted away from your house to allow the space for it to grow. Although banana trees do not have invasive roots they do grow large and their stems can spread. Giving banana trees at least 6 feet of room away from your house or a neighboring fence will give them the space they need to grow. Banana trees will send up new shoots from the base of the plant and often on the outside edges of their root zone. My banana tree grown in a tub continues to send up shoots on the outside edges of the tub. This banana tree after 5 years has eventually broken through the tub but the roots have not escaped. I need to continue to remove the extra stems that pop up to keep it smaller. This is the important reason not to grow it too close to your house. A tall banana tree could also rub against house walls or gutters as they grow. Give them space away from your house and they will grow as a beautiful feature tree. Banana tree roots are soft and not invasive. They will not damage pipes like other invasive trees like fig trees, but they can take over the space. Any plastic pipe could be broken by the weight of the plant so if it is placed directly over a water pipe, there is the chance it could be affected. The best thing to do when planting a banana tree is to give them the space away from underground pipes, houses and pavers. While the banana tree is easy to control it does need attention and regular pruning to keep it contained. Banana trees can be stopped from spreading by regular pruning. Banana trees are easy to prune and can be chopped off using a basic pruning saw. Removing extra stems when they are small is the easiest way to stop banana trees from spreading. Once the stems become larger they will can push the sides of a container out and eventually break it. While banana tree stems and roots can be cut off at any time it is much easier to do this when they are small without damaging the other stems. You can see where an old stem was cut off after it had grown a bunch of bananas. Banana tree roots are shallow compared to the size of the tree. I have a large banana tree and the roots are no deeper than around 2 feet deep. The roots are tightly bound and grow in a ball shape staying in one area surrounded by the container. The roots of my banana tree only have a maximum of 2 feet of soil to grow in so certainly are no deeper than this. Underneath my banana tree is actually a carpark so they have stayed contained in the pot and the small bit of soil underneath. Banana trees can grow incredibly well with a shallow root system. If their root system is limited however they will be more likely to be blown over by strong winds or storms. While mine is protected by a nearby wall, banana trees that are more exposed could be knocked over or break in bad weather. Banana tree roots are not invasive but they can grow large and fill out a container quickly. Banana tree roots and stems are easy to control and can be pruned using a pruning saw or sharp secateurs. Trim off any extra stems that are growing in an area that you don't want to keep the plant smaller and the roots contained. Banana trees are a fantastic feature and can produce a bunch of bananas on each stem. After this the stem will die and can be removed and the tree will replace it with a new one. Happy growing. I am an accredited practicing dietitian, experienced gardener and a dedicated cook. I love writing and sharing my experience so you can learn from my successes and mistakes. Attention all gardeners! Are you wondering if banana trees have the ability to spread and take over your beloved garden? Perhaps you are concerned about their potential to grow out of control and become invasive. Fear not, for we have delved deep into the world of bananas to bring you an answer to this burning question. So sit back, relax, and let's explore the world of these tropical giants and their spreading tendencies. Characteristics Answer Plant type Perennial tree Propagation Through suckers, also called offshoots or pups Spread method Suckers grow from the base of the mother plant Growth rate Moderate to fast Soil requirements Well-drained soil with pH between 5.5 and 7.0 Sun exposure Full sun to partial shade Water requirements Consistent and abundant watering Temperature range Heat-tolerant, with optimal growth between 78-86°F Frost tolerance Frost-sensitive, can be damaged by temperatures below 50°F Pests and diseases Susceptible to bacterial and fungal diseases, as well as nematodes and mites Harvest time Varies by cultivar, usually 9-18 months after planting Yield Varied, ranging from 50-200 pounds of bananas per tree per year How do banana trees spread in the wild and in agriculture? Banana trees are one of the most commonly grown fruit trees worldwide. They are cultivated for their delicious and nutritious fruits, which are enjoyed by people all over the globe. Apart from their delicious fruits, banana trees are also known for their interesting growth patterns. If you are a gardener who is interested in growing banana trees, you might be curious about how they spread in the wild and in agriculture. In this article, we will explore these aspects of banana tree growth in detail.Wild Banana TreesIn the wild, banana trees are known to spread through suckering. This means that new banana plants arise from the underground rhizomes that are connected to the parent plant. As these rhizomes grow, new shoots will emerge from the soil, which will develop into individual banana trees. Over time, these trees will become interconnected as they all arise from the same underground system. This means that a single banana tree in the wild can give rise to an entire grove of banana trees.Agricultural Banana TreesWhen it comes to agriculture, banana trees can be propagated through different methods. One common way is through vegetative propagation, where a part of the parent plant is used to grow a new one. For example, if you want to grow a new banana tree from an existing one, you can take a small suckering that has emerged from the parent's rhizome and transplant it in a new location. As it grows, it will develop into a new banana tree that is genetically identical to the parent plant.Another method used in agricultural practices is tissue culture. In tissue culture, small pieces of the parent plant are taken and placed in a laboratory setting with nutrients and hormones. This will cause the cells to divide, resulting in new banana plants that are genetically identical to the parent. Tissue culture propagation is a useful technique because it allows for the rapid production of large numbers of banana plants.Maintenance of Banana TreesRegardless of how your banana trees were propagated, it's essential to keep them healthy and well-maintained if you want to produce quality fruits. One critical factor is proper soil management, which involves regular watering and fertilization. Banana trees prefer well-draining soil that is rich in nutrients, so be sure to add compost or other organic materials to the soil regularly.It's also essential to prune your banana trees regularly. Pruning helps to promote healthy growth and prevents overcrowding, which can lead to decreased fruit production. Be sure to remove any dead or damaged leaves, as well as any suckers that are growing too close to the parent plant. This will not only help to maintain the health of your banana trees but also contribute to the aesthetics of your garden.In conclusion, banana trees can spread in the wild and in agriculture through different methods of vegetative propagation. Understanding this process and how it works will help you to grow healthy and productive banana trees. Remember to keep your banana trees well-cared for by providing adequate water, nutrients, and pruning in order to produce healthy and delicious fruits.What steps can be taken to control or contain the spread of a banana tree plantation? Banana trees are a popular crop that can be grown in a plantation. However, diseases and pests can quickly spread and damage the plantation. To control and contain the spread of these issues, there are several steps that gardeners can take.Step 1: Plant Disease-Resistant VarietiesPlanting disease-resistant varieties is the first step in controlling the spread of diseases in a banana tree plantation. These varieties have been specifically bred to resist common diseases such as Panama disease or Black Sigatoka. For example, the Dwarf Cavendish banana variety is known for being Panama disease-resistant. Make sure to do research on the varieties that are best suited to your climate and soil conditions.Step 2: Use Good Agricultural PracticesGood agricultural practices are essential in maintaining healthy banana trees. This includes proper planting and fertilization, as well as regular pruning to remove dead or diseased leaves. Rotate crops to prevent soil-borne diseases and avoid planting bananas in areas where other diseased crops have been grown.Step 3: Monitor for Pests and DiseasesMonitoring for pests and diseases in a banana tree plantation is crucial to catching issues early on. Regularly inspect plants for any signs of damage or discoloration. Keep an eye out for pests such as weevils or aphids, which can spread diseases. If pests or diseases are discovered, take appropriate action immediately to prevent further spread.Step 4: Practice Quarantine MeasuresTo contain the spread of plant diseases or pests, practice quarantine measures. Isolate infected plants from the rest of the plantation to prevent further damage. Also, quarantine any new plants or soil that are brought into the plantation to ensure they are disease-free.Step 5: Use Biological ControlsBiological controls, which are natural predators or parasitoids, can be used to control pests in a banana plantation. For example, ladybugs can be introduced to control aphids. Introducing biological controls can help to minimize the use of insecticides, which can be harmful to the environment and human health.In conclusion, controlling and containing the spread of pests and diseases in a banana plantation requires proper planning and implementation of good agricultural practices. By planting disease-resistant varieties, practicing good agricultural practices, monitoring for pests and diseases, using quarantine measures, and utilizing biological controls, gardeners can successfully maintain a healthy banana plantation.Are there any invasive species concerns associated with banana tree spread in certain areas? Bananas are a delicious and healthy tropical fruit that is enjoyed all over the world. However, as banana trees continue to spread into new areas, concerns about invasive species are on the rise. In this article, we will explore the potential negative impacts of banana tree spread and how gardeners can be mindful of these issues.Invasive species are defined as non-native plants, animals, and microbes that disrupt or degrade ecosystems. When an invasive species is introduced into a new environment, it often takes over the native species, competes for resources such as water and nutrients, and alters the landscape. This can lead to a loss of biodiversity and ecosystem services.In the case of banana trees, their fast growth rate, wide-ranging roots, and ability to reproduce asexually make them particularly problematic in certain areas. For example, in some parts of the Caribbean, banana trees have spread rapidly and have taken over the landscape, pushing out native species that provide important ecosystem services such as erosion control.Moreover, banana trees can sometimes become diseased, and this can also become a problem for ecosystems that are not used to dealing with them. While banana trees are not themselves invasive species, they can become a vector for the spread of other potentially harmful plants, bacteria and viruses.So, what can gardeners do to mitigate the impact of banana trees on their environments? The first step is to be aware of the potential consequences of planting banana trees in certain areas. Gardeners should research the potential risks and benefits of installing banana trees in their specific regions, and consult with local experts who are familiar with the ecosystem.If banana trees are installed in an area with sensitive ecosystems, gardeners can take steps to mitigate their impact. For example, planting banana trees in containers rather than in the ground can help to contain its rooting system to a single area, which can help prevent it from spreading to unwanted areas. Gardeners can also plant native species alongside banana trees to help maintain a more diverse ecosystem.In conclusion, while banana trees are beloved for their delicious fruit and bold tropical foliage, it is important to be mindful of their potential negative impacts on the environment. Gardeners can take proactive steps to mitigate these risks by being aware of the potential consequences of planting banana trees in their area, planting them in containers, and incorporating native species into their garden design. By being mindful of these concerns, gardeners can continue to enjoy the benefits of banana trees without causing harm to local ecosystems. Banana trees are a common sight in many tropical regions around the world. They provide a source of food and income for many people, but their spread can have negative effects on local ecosystems and biodiversity. In this article, we will explore how the spread of banana trees affects local environments and what gardeners can do to minimise their impact.The spread of banana trees can lead to a loss of biodiversity as they tend to dominate the area they grow in. Banana trees are typically planted in monocultures, meaning that only one type of plant occupies a large area. This results in a lack of diversity in the ecosystem as other plants and animals are forced out of the area. The removal of diverse plant species can have a cascading effect on the entire ecosystem, resulting in a loss of biodiversity.Another problem caused by the spread of banana trees is soil erosion. Banana trees have shallow root systems, which do not hold soil together as well as other plant roots. When strong winds or heavy rains occur, soil can be easily washed away, leading to erosion. This can lead to problems in nearby rivers and other waterways, as sediment can build up and clog the water channels.In addition, banana trees are highly susceptible to pests and diseases which can further impact local ecosystems. Often, pesticide use is high in banana plantations, posing a risk to both humans and wildlife.So, what can gardeners do to minimise the impact of banana tree spread on local environments? One solution is to incorporate other plants into banana plantations. This can help reduce the impact of soil erosion as well as maintain biodiversity. Another option is to rotate crops or use intercropping, wherein multiple crops are grown together. This practice can help reduce pest and disease pressure and reduce the need for pesticides.Finally, gardeners can use organic practices to help reduce the use of pesticides and fertilisers. This can include using compost and organic fertilisers to support plant growth, as well as using natural pest control methods such as trap crops and predator insects.In conclusion, the spread of banana trees can have a negative impact on local ecosystems and biodiversity. However, gardeners can take steps to reduce this impact by incorporating other plants, using intercropping, and employing organic practices. Through these efforts, the spread of banana trees can be better managed, leading to a healthier and more diverse ecosystem.Can genetic modification be used to prevent the spread of diseases that are commonly transmitted among banana trees? Bananas are one of the most important crops worldwide, providing food and income to millions of people. However, they are highly susceptible to diseases, which can cause significant losses to farmers. One of the most devastating diseases is Panama disease, caused by the fungus Fusarium oxysporum f. sp. cubense (Foc). There are several races of Foc, and some of them can destroy entire plantations, making it crucial to find a way to prevent their spread.One possible solution is the use of genetic modification to create banana plants that are resistant to Foc. This technology involves the insertion of a specific gene into the plant's DNA, which makes it resistant to the disease. The gene comes from a bacterium called Bacillus subtilis, which produces a protein that triggers the plant's immune system when Foc infects it.Several research groups have already developed genetically modified bananas that are resistant to Foc. In one study, researchers from Australia and Belgium inserted the gene into a Cavendish banana, the most commonly grown banana variety. The resulting plants showed high levels of resistance to Panama disease, even when exposed to the most virulent strains of the fungus.Another group from Taiwan used a different strategy, inserting a gene from sweet pepper that codes for a protein that inhibits Foc's growth. The genetically modified bananas produced in this study also showed high levels of resistance to the disease.While genetic modification offers a promising solution, there are still some concerns about its safety and potential impact on the environment. Some people argue that releasing genetically modified bananas into the environment could have unintended consequences, such as crossbreeding with wild banana varieties and affecting biodiversity.For this reason, it is important to carefully assess the risks and benefits of using genetically modified bananas to prevent Panama disease. Ideally, genetic modification should be combined with other measures such as crop rotation, sanitation, and the use of resistant varieties to create a more sustainable and integrated approach to disease control.In conclusion, genetic modification can be a powerful tool to prevent the spread of diseases that commonly affect banana trees, including Panama disease. However, it should be used as part of a comprehensive disease control strategy that takes into account the potential risks and benefits of this technology. By working together with farmers, scientists, and policymakers, we can create a more resilient and sustainable banana industry.Frequently asked questions Answer: Yes, banana trees have a tendency to spread rapidly due to their fast growth rate, but their spread can be slowed down by regular harvesting and pruning. Answer: Yes, planting banana trees in a small garden or yard can lead to them spreading uncontrollably and taking over the space. It is recommended to plant them in a large area or a dedicated agricultural setting. Answer: One way to control the spread of banana trees is to regularly harvest the fruit and remove any suckers that grow from the base. Another way is to plant them in containers or raised beds to limit their growth and spread. Keep your banana trees from taking over your garden.GettyBanana trees, which aren't true trees but large herbs whose leaves wrap around and create what looks like a trunk, grow as tall as 9 feet and as wide as 2 feet. While bananas can lend a tropical vibe to your home's surrounding landscape, the plants also produce dozens of suckers at the bottom of the pseudo-trunk. To contain your banana tree and keep it from spreading into areas of your yard that you want to keep clear, you must control these suckers and remove them as soon as they appear. Pull on protective clothing, such as closed-toe shoes, pants and gloves. The banana tree's brown sap, which is high in minerals like potassium, can stain your clothing and hands. Cut the banana tree's suckers as soon as they push above the soil surface from the banana tree's underlying rhizome system, cutting the sucker down to soil level. Use pruning shears for a cleaner, controlled cut, as a hand saw may be hard to handle when working this close to the ground. Pierce and dig out the middle of the now-exposed underground section of the sucker using a metal bar, such as a rebar. Stab and dig at the fleshy interior to remove as much of it as possible. This kills the sucker, otherwise it simply will regenerate. Article continues below this adArticle continues below this adA banana tree produces fruit just once. Thus, you may wish to leave one or two suckers growing at the base of the plant. Once the adult plant produces fruit, cut it down to the ground and allow the suckers to mature into new adult trees.Sep 7, 2012|Updated Sep 7, 2012 11:32 a.m.