

Let's Grow Daffodils!

A Program produced by the American Daffodil Society

This is a script for the American Daffodil Society program titled "Let's Grow Daffodils!" An experienced gardener can make alternative or additional comments about the slides. The program is intended for garden clubs or others who are considering growing daffodils and as such concentrates on the basics that can be presented in about 40 minutes. After the last slide of the main program there are additional slides that an experienced gardener might use if audience members ask about other aspects of daffodils. The numbers below match the slide numbers (page numbers) that appear in the lower right corner of each slide (except the title slide has no number). If you are pressed for time, you can omit reading the parts of the script that are enclosed in square brackets.

1. Welcome to this presentation prepared by the American Daffodil Society. We are pleased that you are considering growing daffodils and that we can provide you with some basic information to get you started.
2. Gardeners can select from hundreds if not thousands of different plants to grow, so what makes daffodils special? One is that daffodils are among the first flowers to bloom in the spring and are a most colorful and welcome sight after a long winter. Daffodils are perennials. Under favorable conditions they can be left in the ground until they become crowded and need dividing. In a naturalized setting, they might never need to be dug. The other major reason for choosing daffodils is that they contain alkaloids that are distasteful and mildly poisonous so that deer don't eat them.
3. Let's define a few terms that we will be using when discussing daffodils. [One is cultivar, meaning a cultivated variety as opposed to wild or naturally occurring daffodils. Yes, you can grow species daffodils, but if you are new to daffodils, you will start by growing cultivars – that is, commonly named varieties. The species have only (Latin) botanical names, and species and cultivars are all members of the genus *Narcissus*. Daffodil is the common English word for *Narcissus*. There are regional usages such as "jonquil" instead of "daffodil," but "daffodil" is the preferred common term in English-speaking countries.]
4. We are going to be talking about the perianth (pronounced PERRY-anth) and the corona (pronounced kor-RO-na), so you need to know the perianth is the petals, and the corona is the cup. If the cup is long enough, we call it a trumpet.
5. We will be seeing pictures of cultivars along with their names and classifications, so you need to remember what a classification is. A classification consists of a division number and a color code. The color code describes the colors of the perianth segments from the tip to the base followed by a hyphen and the colors of the cup from the base to the rim. Perianths have a tip, midzone, and base. Coronas have a base, midzone, and rim. If all three zones are the same color, then only one color letter is needed. Thus an all yellow daffodil would just be Y-Y. [This classification system was a refinement by American Tom Throckmorton of an earlier Royal Horticultural Society classification system and was adopted by them and by the American Daffodil Society.]

6. For horticultural purposes there are 13 divisions of daffodils. Cultivars are assigned to one of the first 12 divisions based on their appearance. All the species are assigned to Division 13. We next describe the divisions and show you examples of daffodils in each division.
7. Division 1 daffodils are characterized by having coronas that measure equal to or longer from base to rim than the perianth segments measure from base (where it joins the corona) to tip. ['Bravoure' is a readily available cultivar. 'American Dream' is a fairly expensive new cultivar, but we show it to you as an example of a recent advance in the colors that are now available in this division. The illustration for this and other divisions was produced by the Royal Horticultural Society.]
8. 'Denali', 'Pink Silk', 'Trumpet Warrior', and 'Tuscarora' are all modern American-bred cultivars of exhibition quality. [For garden use there are readily available white and yellow trumpet daffodils. Incidentally, the true 'King Alfred' daffodil is available from specialist suppliers, but most daffodils sold as 'King Alfred' are actually modern cultivars that look similar to 'King Alfred'.]
9. Division 2 daffodils have coronas whose length is more than 1/3 but less than equal to the length of the perianth segments. There are many large cup Y-Y cultivars available. ['Golden Aura' is an older exhibition cultivar now available at a reasonable price. If you want a pink-cupped daffodil, 'Accent' has been mass-produced and is the least expensive pink you can buy.]
10. There are more large-cup daffodils than any other division, and not unexpectedly, this division offers the greatest range of different colors. [There aren't very many orange daffodils (e.g. 'Bailey'), and most of them are in Divisions 2 and 3. As you start growing more daffodils, you will realize the variations in shape that exist. Notice that 'Valley Glow' has very wide perianth segments compared to 'Loch Lundie' that give the flower a round appearance. Also, its corona flares widely while 'Crown Gold' has an almost cylindrical corona.]
11. Division 3 daffodils have coronas whose length does not exceed 1/3 the length of the perianth segments. [One of the least expensive is 'Barrett Browning'. There are very few all yellow small cup daffodils, and 'New Penny' is probably the most affordable of them.]
12. Here are some more examples of small-cup daffodils. ['Green Pearl' is readily available. 'Badbury Rings', 'Carneary', and 'Fussy' are offered by specialist daffodil suppliers.]
13. Division 4 daffodils may have doubling of the perianth segments or the corona; however, most double daffodils have doubling of both the perianth segments and the corona. ['Tahiti' and 'Erlicheer' are among the most widely available and least expensive of the doubles. 'Erlicheer' is very fragrant.]
14. 'Southern Hospitality' is an American-bred cultivar. 'Crackington' and 'Polgreen' come from England and 'Unique' from Ireland. ['Unique' is an older cultivar and is the least expensive of these four. Doubles tend to bloom late in the daffodil season and do best where springs are long and cool. 'Crackington' is one of the few doubles that will still do well in warmer climates.]

15. Division 5 daffodils have characteristics of *Narcissus triandrus* (pronounced try-AN-drus). This includes reflexing or bending backwards of the perianth segments. ['Thalia' and 'Dutch Lemon Drops' are widely available and inexpensive. 'Thalia' is a very old cultivar and has an informal appearance. It is a strong grower, and that's why it continues to be commercially available.]
16. 'Garden Chimes', 'Sunday Chimes', and 'World Class' were bred by one of America's foremost daffodil hybridizers in Oregon. 'Churchfield Bells' comes from England. [These are all fairly new cultivars and hence more expensive than 'Thalia'. The photos show that even within the same classification of 5Y-Y, cultivars can have differences in the shapes and lengths of the perianth segments and coronas.]
17. Division 6 daffodils have characteristics of *Narcissus cyclamineus* (pronounced sigh-kla-MIN-ee-us) that in turn got its name from the significantly bent back perianth segments of cyclamen flowers. Division 6 daffodils as a group seem to be more tolerant of partial shade and moisture; indeed, some grow poorly in hot, dry climates. ['Rapture' is one of the best cyclamineus daffodils for both garden and exhibition. 'Beryl' has been around for over a hundred years and is one of the best of the historic cultivars of daffodils. 'Rapture' is easily obtainable and affordable and is therefore one of the best buys you can make for daffodil bulbs.]
18. 'Trena' is another affordable daffodil for garden or exhibition. 'Velocity', 'Lemon Silk', and 'Sugar Rose' are newer cultivars shown here to illustrate recent advances in the colors available in this division. ['Lemon Silk' is an example of a reverse bicolor daffodil, namely one in which the corona is mostly white and the perianth is mostly not white. Notice that the coronas can be of any length relative to the perianth segment length; it is the significant reflexing of the perianth segments that primarily justifies classifying a cultivar as Division 6.]
19. Division 7 daffodils have characteristics of Sections Jonquilla (pronounced jon-QUILL-ah) or Apodanthus (pronounced ah-po-DON-thus) clearly evident: one to five flowers to a stem; perianth segments spreading (i.e. sticking straight out sideways) or reflexed (i.e. bending backwards); flowers usually fragrant. ['Stratosphere' and 'Pipit' are two readily available cultivars. 'Stratosphere' is noted for its tall stems – hence its name. 'Pipit' is a reverse bicolor with a white corona and mostly yellow perianth when the bloom matures. 'Dainty Miss', like most of the apodanthus side of Division 7, has only one flower per stem and is less fragrant than those on the jonquilla side. The flower is about two and a half inches in diameter.]
20. 'Limequilla', 'Kokopelli', 'Beautiful Eyes', and 'Golden Echo' are all fairly recent American-bred cultivars. The latter three are readily available.
21. Division 8 daffodils have characteristics of the *Narcissus tazetta* (pronounced ta-ZET-ah) group predominant: usually three to twenty flowers to a stout stem; leaves broad; perianth segments spreading, not reflexed; flowers fragrant. There are two types of tazettas: "true" tazettas with many florets, which are hardy in warm climates but don't do as well in cold climates; and "poetaz," those with two to five florets, which are more suited to colder climates. ['Grand Primo' is a very old, historic cultivar. 'Avalanche' has also been with us for a while, so both are quite affordable. 8W-Y was a popular classification, and there are several

other cultivars of this classification with minor differences in the shapes and color intensities of the coronas.]

22. A century ago the tazetta type daffodils were very popular with many being bred in England and Holland. ['Innisidgen' is a modern English cultivar while 'Martha Washington' is a Dutch cultivar from 1927. 'Golden Dawn' and 'Matador' both date from the 1950s from Oregon. 'Golden Dawn' is a true tazetta while the others are poetaz tazettas.]
23. Division 9 daffodils have characteristics of *Narcissus poeticus* (pronounced po-ET-i-kuss) predominant: usually one flower to a stem; perianth segments pure white; corona usually disc-shaped, with a green or yellow center and a red rim; flowers fragrant. Many Division 9 daffodils share an affinity for the cool, mountainous climates in which their wild ancestors are found and have roots that are active for many months of the year. Transplanting them is likely to disrupt the roots so try to leave them alone once they're planted. ['Actaea' is by far the most commonly available poet-type cultivar on the market.]
24. 'Dactyl' and 'Cantabile' (pronounced kan-TAH-bee-lay) are older cultivars. 'Chesterton' and 'Vienna Woods' are newer cultivars. [As you can see, the definition of Division 9 does not leave room for much variety. 'Vienna Woods' is unusual among Division 9 cultivars in having a mostly red corona.]
25. Division 10 daffodils have characteristics of Section *Bulbocodium* (pronounced bul-bo-CO-dee-um) clearly evident: usually one flower to a stem; perianth segments insignificant compared with corona; filament and style are usually curved. The filaments are the six elements in the center with the yellow anthers or pollen bearing organs on the end. The style is the single central element with the stigma or pollen-receiving organ on the end. *Bulbocodium* daffodils are often listed as hoop petticoat daffodils in catalogues. [The overwhelming majority of Division 10 daffodils are considered to be miniatures. 'Kojak' is bred by one of the world's foremost hybridizers of miniature daffodils in Tasmania, Australia. Division 10 daffodils are usually frost tender and need to be grown with some protection in hard winter regions.]
26. 'Apollo Gold', though fairly new from Oregon, is already affordable. The ruler is calibrated in centimeters. 'Mitimoto' is unusual for a *bulbocodium* by being a bicolor (i.e. white perianth and colored corona). [Both of these are miniature daffodils. These photos show that the flaring of the corona can be modest or extreme.]
27. Division 11 daffodils have coronas that are split, usually for more than half their length. In addition to being split, the corona is often (but not necessarily) flattened against the perianth. Division 11 is made of two subdivisions. Division 11a is collar daffodils that have corona segments opposite the perianth segments, the corona segments usually in two whorls of three. The meaning of opposite is that the six lobes of the corona lie on top of the six perianth segments. Division 11b is papillon (pronounced PAPPY-yawn) daffodils. Papillon is the French word for butterfly, so catalogues often list them as butterfly types. These have corona segments alternate to the perianth segments, the corona segments usually in a single whorl of six. The meaning of alternate is that the six lobes of the corona lie over the gaps between perianth segments. The vast majority of Division 11 daffodils are 11a or collar daffodils.

28. 'Jack Wood' and 'Jantje' (pronounced YAN-cher) are new cultivars from England. 'Trump' is a new cultivar from New Zealand. 'Diversity' is one of the modern pink split coronas.
29. 'Tripartite' is one of the small number of split corona daffodils with multiple florets (flowers) on a stem. 'Jodi's Sister' is one of the small number of Division 11b, papillon or butterfly, split corona daffodils. [The color-coding of the corona as P/W uses the slash convention to show that the colors are distributed radially rather than as rings around the center. The colors are given in descending order of their prominence, so P/W means more pink than white.]
30. Division 12 is a miscellaneous division for cultivars that do not fit any of the other eleven divisions for cultivars. The most frequent reason is that a cultivar is often multi-floreted so that it does not fit into a division that otherwise specifies one flower to a stem. 'Mesa Verde' is a cultivar that often has two florets, and that, rather than being green, puts it in Division 12.
31. Divisions 5, 7, and 8 are the ones in which multi-floreted cultivars are normally accepted, but as you can see from the photos of 'Canyon Wren', 'Toto', and 'Tête-à-Tête' the forms of the florets don't meet the definitions of those divisions. [By the way, 'Tête-à-Tête' is a miniature daffodil and is widely sold as a potted plant. It is by far the most common miniature daffodil.]
32. Division 13 is for daffodils distinguished solely by botanical name. The species and wild hybrid daffodils found in nature are in this division although if a particularly nice form of a wild daffodil is cultivated and cloned, it becomes a cultivar, gets a name, and is placed in the appropriate cultivar division. *Narcissus rupicola* (pronounced roo-PIC-o-lah) and *Narcissus obvallaris* (pronounced ob-va-LAIR-us) are commercially available. [Notice that the division number is often given without a color code because some species are highly variable in color so that no single code fits the entire species. The species generally propagate by seed so that there is genetic variation from one plant to another while cultivars are cloned so that there is no genetic variation within a cultivar.]
33. The four photos here show species whose characteristics are used in the definitions of Divisions 5, 6, 7, and 8. [*Narcissus triandrus* subspecies *pallidulus* (pronounced pa-LID-you-lus) shows the pendent florets with reflexed perianth segments of Division 5. *Narcissus cyclamineus* usually has yellow perianth segments that reflex straight back as in this example. When hybridized with other daffodils to create new cultivars, the reflexing of the hybrid's perianth segments is usually not as dramatic as in the species. *Narcissus jonquilla* typically has three or more small yellow florets. *Narcissus tazetta* typically has a white perianth and colored corona.]
34. Daffodils come in different sizes, and the American Daffodil Society often accepts single flowered daffodils less than 50 millimeters in diameter as miniatures. Multi-floreted daffodils, even those with small florets, may or may not be considered miniatures depending on the overall size and proportion of the floral mass. In Division 4 we saw an example of 'Erlicheer' whose mass, even though the florets are about 25 millimeters in diameter, is so large that it could not be conceived of as miniature. Daffodils that aren't miniature are called standards. In the past, daffodils at the small end of the standard range were at a competitive disadvantage against bigger cultivars at daffodil shows. Thus a subset of standards called intermediates was defined in order to give them a place to compete. Intermediates are single-floreted cultivars in Divisions 1, 2, 3, 4, and 11 whose diameters are typically greater than 50 millimeters and up

to 80 millimeters. There has been interest lately in deliberately breeding intermediate daffodils to fit the smaller gardens of recently built homes. But if you're really short of space, the miniature daffodils take even less room. Many can be grown in pots because their root systems do not grow as deep as the roots of standards.

35. Now that we've seen how beautiful daffodils can be, let's look at how they grow and how you grow them. Daffodils grow from bulbs. The bulb on the right is called a single nose round because it has one growing point. If it grows well, it develops offsets in a year or two as shown on the bulb at the left. Eventually, the offsets become big enough to be single rounds themselves. That's how daffodils increase vegetatively. The offsets are genetically identical; that is, they are clones of the original bulb. If a daffodil increases to the point of getting crowded, you should dig the bulbs, separate them, and replant. It's the equivalent of dividing perennials.
36. You can dig individual holes for bulbs, but digging out a bed for an entire clump assures that the bulbs will all be planted at the same depth and will therefore bloom at the same time. It's hard to plant all bulbs at the same depth with a bulb planter; hence, we show a shovel. Under good growing condition, the bulbs will form more bulbs as offsets, so plant them about six inches apart to give them space for increasing. In general, bulbs should be planted at a depth about twice their height or about six inches deep. Deep planting, about eight inches deep, usually requires less frequent lifting. Conversely, shallower planting encourages bulb division. Of course, miniature daffodils with their smaller bulbs are planted shallower than large bulbs. Regardless of the bulb size, the soil below the bulb should be sufficiently loose so that the roots can grow downward easily. If possible, the soil should be loosened to twice the depth that the bulb is planted. Such deep digging also improves the drainage. Check each bulb for firmness before you plant it. A soft bulb is likely to be rotting on the inside and should be discarded. Also discard any bulb in which you detect purple or dark brown staining of the white tissue just above the basal plate because this is an early symptom of basal rot.
37. In general, you want your bulbs planted by the time the soil temperature cools down because the bulbs will start putting out new roots then. Although the daffodils do not send up leaves until spring, they start rooting when the soil is cool and moist in late fall. The map suggests appropriate planting times in the contiguous states. Many of the large mail order bulb suppliers will ship bulbs to arrive at the proper planting time.
38. Daffodils need at least a half-day of sun. So don't plant them in total shade. When choosing a planting location, be aware that the flowers tend to face the sun. So keep this in mind if you want them facing you rather than your neighbor! Daffodils need good drainage. So don't plant them in a bog, and, as mentioned before, do loosen the soil below the bulbs to improve drainage. Daffodils need water in the spring, but don't water in the summer after the leaves start turning yellow. If your soil is poor in nutrients, you can fertilize with low nitrogen, high potassium fertilizer. Excess nitrogen encourages too much leaf growth and reduces resistance to basal rot. If you use nitrogen, apply it in late winter so that it reaches the roots a couple weeks before bloom time and gives you bigger flowers. Potassium is necessary for rebuilding the bulb. Indeed, most bulbous plants need a generous supply of potassium. The photo shows a label for a daffodil fertilizer, but you should be governed by what your soil needs rather than a rigid formula.

39. Daffodil foliage needs sunlight after blooming to make nutrients for rebuilding the bulb. The bulb actually gets smaller as the stored nutrients are used to make leaves and flowers. A period of photosynthesizing is needed to rebuild the bulb and to form offsets. Don't braid the foliage because that prevents sunlight from reaching all the leaf surfaces. Instead, plant something in front of the daffodils that will grow tall after the daffodils have bloomed. Do not remove the foliage while it is still green because it is still photosynthesizing. For some suggested companion plants, see the web site of the Cornell University Department of Horticulture at the URL shown on the screen. The web site has photos taken during and after daffodil season. Type what appears to be a multi-line URL as a single line into your web browser, or, if you are viewing this presentation as a PDF file on an on-line computer, try clicking on the line of tiny type (which is a hyperlink to the aforementioned web site).
40. If the weather doesn't permit you to enjoy your daffodils outdoors, bring them inside! Daffodil stems need to be kept in water, and a simple vase will do. There are no preservatives that are highly effective at prolonging the vase life of daffodils. Just cut a little off the end of the stems and replace with fresh water every couple days. Pick only the flowers and not the leaves; the bulb needs the leaves for photosynthesis. If you are artistically creative, here are some photos of designs to inspire you.
41. Remember, daffodils are among the earliest flowers to bloom in the spring. Their beauty and deer resistance make daffodils an outstanding choice for starting your gardening season. The American Daffodil Society hopes you enjoyed this brief presentation on growing and using daffodils. The Society offers much more information than can be presented in this program. Visit the URLs on this screen to learn more about daffodils and to see lists of daffodil suppliers.
42. If you would like to become a member of the American Daffodil Society, visit our web site at www.daffodilusa.org. Thank you for your attention.

This is the end of the program. The following slides are additional ones that an experienced gardener can use if they help answer questions from the audience.

43. Species daffodils are native to Europe and across the Mediterranean region. None are native to the United States. Those species that have been used in breeding our modern cultivars have come mostly from Spain, Portugal, and France. Many are mountain plants, blooming as the snow melts in spring. Generations of breeding have given us plants that survive in a variety of climates. If you want to grow species daffodils in your garden, research the requirements for that particular species, both climate and growing conditions. *Narcissus tazetta*, grown near the Mediterranean Sea, may not be suitable for growing outdoors where winters are severe. Conversely, *Narcissus poeticus*, which is a mountain plant, may not be happy in areas with warm climates. There are a few species that bloom in the fall, and most of these (and their hybrids) would be suitable for warm winter climates or growing in a greenhouse.
44. New daffodils are grown from seed and may take 3 to 7 years to reach flowering size. A daffodil flower has six stamens. A stamen is a pollen-bearing organ consisting of an anther borne on the end of a filament. The powdery looking substance on the anther is the pollen. Either a person or a bee can carry the pollen from one flower to the stigma of another flower. The pistil is the central and female portion of the flower, consisting of the stigma, the style,

and the ovary. The stigma is the tip of the pistil that receives the pollen. The style is the portion of the pistil connecting the stigma to the ovary. The ovary is the swollen basal portion of the pistil and is the part containing the ovules, which after fertilization, becomes the fruit bearing the seeds. If the cross takes, the ovules will ripen into seeds in late spring. For the first couple years, a new daffodil seedling looks like a blade of grass. Subsequently, the plant has small leaves that look like daffodil leaves, and eventually the bulb grows large enough to flower.

45. The spathe is semi-transparent, membranous envelope enclosing the ovary, bud, and young flower. The basal plate is the bottom of the bulb from which the roots emerge. The mucro is the sharp, terminal point at the tip of the perianth segments whose purpose is to lock the three outer segments over the three inner segments until the entire flower is ready to open. The mucro is more pronounced on the sepals (the three outer perianth segments) than on the petals (the three inner perianth segments). The scape is the flowering stem.
46. An alternative to planting daffodils in the ground is to grow them in pots or containers. They can be moved into view when in bloom and moved out of view after blooming. Make sure you use containers that are light and small enough for you to lift. A half wine barrel is not easy to move when it's full of wet soil. Miniature daffodils have a root system small enough to fit in pots that you can carry. Standard size daffodils have a larger root system, and if you grow them in a relatively small pot, you will have to fertilize more to compensate for the small growing volume.
47. A daffodil show is a flower show, just like a rose show or orchid show. You can visit the American Daffodil Society web site to see if there are ADS approved shows near you. If not, see if there are garden clubs near you that sponsor flower shows with sections in which you can enter daffodils. Or just set up a daffodil display at a local garden or park. This is a photo of a typical show where daffodils are staged in test tubes inserted in wooden blocks. Greenery (but not daffodil foliage) is used to wedge the stems securely in the test tubes so that they don't swivel around.
48. There are other scales for judging species, historic daffodils, and daffodils grown and shown in containers; however, the most commonly used scale is the cultivar scale. An overly brief summary of the criteria for evaluating daffodils follows. Form is about the pleasing shape of the flower and its conformance to the ideals for its division. Condition is about freshness, cleanliness, and freedom from damage. Substance and texture are about the thickness and smoothness of the perianth segments. Color is about the clarity and cleanliness of the color and whether it is characteristic of the cultivar. Pose is the angle at which the flower faces. Stem is about length and straightness. Size is in comparison to well-grown examples of the cultivar. The criteria are actually more complex than this summary, and if you want really to know how to judge daffodils, you should purchase the *Handbook for Growing, Exhibiting, and Judging Daffodils* from the American Daffodil Society or even take the Society's judging schools.
49. Most daffodils bloom in the spring, but there are some species that bloom in the fall. Depending on what hybrid crosses are made with them, their children may bloom in the fall or winter. Since they have leaves in the winter, they must be grown in mild winter regions or in greenhouses. Most interesting is *Narcissus viridiflorus*. Its flowers really are green. Attempts

to develop spring blooming green daffodils have resulted in cultivars such as 'Mesa Verde' that you saw in slide Number 30. Since *Narcissus viridiflorus* has to be crossed with white or yellow daffodils to shift the bloom time, the greenness tends to be dissipated in successive generations.

50. Different cultivars have different climatic requirements. You will have more success if you choose cultivars suitable for your climate and avoid unsuitable cultivars. While it is not feasible to give you specific examples, we can make some general comments about various regions and climates. Mild winters and dry summers in California are favorable for the fall-blooming species and for Division 8 cultivars. Conversely, it is unfavorable for many Division 4, 5, 6, and 9 cultivars and many all-white daffodils. The Pacific Northwest is well suited for a very wide range of daffodils as evidenced by the large number of American-bred daffodils originated in that area. The American Midwest, Mid Atlantic, and Northeastern regions are also good daffodil-growing areas but are a little too cold for many Division 8 cultivars. Miniature daffodils there will require some protection from the cold, especially bulbocodium cultivars since they typically grow and bloom in late winter. The northern plains have very cold winters, so some form of protection such as mulch is needed to keep the soil from freezing down to bulbs. The South has problems similar to California; however, winters can be a little colder, and summers will be hot and humid. Any cultivar susceptible to basal rot would be a bad choice. Advice for the warmest parts of the South can be found in the book *Daffodils in Florida: A Field Guide to the Coastal South* available at the ADS web store.