



Growing Spinach and Orach for Seed Saving

Spinach is familiar to everyone, but its relative, orach (also called mountain spinach, red orache, French spinach) is not. They are both in the amaranth plant family, but are different species so won't cross-pollinate. Orach is very attractive and easy to grow. It is considered a warm-season alternative to spinach. They taste more or less the same.

Spinach is very cold-tolerant, and can be used as a winter crop if the plants are protected from temperatures below -9°C . Seeds for spring crops should be planted as early in the spring as possible. When the weather starts to warm up, the plants will produce flower stalks ("bolt"). Orach is much more heat and drought tolerant than spinach. It can also be planted early in spring and then harvested as baby greens. For salads, it is best picked before the plant reaches about 50 cm (18 inches) tall; older leaves can be used in cooking.

Spinach and orach are wind-pollinated, so the tiny pollen grains can be blown long distances.

The minimum isolation distance between varieties of spinach and between varieties of orach is 200 m. This can be challenging for home gardeners wishing to save seeds. You could plant spinach or orach in a block rather than a row, and then take seeds from the centre of the block. Even so, don't save seeds if your close neighbours allow their spinach or orach to bolt. You can plant spinach and orach next to each other though.



Spinach has male flowers on one plant and female flowers on a different plant. This is technically called *dioecious* "dy-ee-shus", a Greek word meaning "two houses" – in other words, male flowers live in one house (plant) and female flowers on a different plant or "house." Orach, on the other hand, has male and female flowers on the same plant, termed *monoecious* ("mon-ee-shus") or "one house."

Orach

Preparing the Garden

The soil should not be too wet or too dry when you cultivate it for planting. Remove weeds. Add manure, compost, or all-purpose organic fertilizer and dig it in. Rake it smooth. If possible, wait a few days before planting so the soil will settle. This way, the seeds will have good contact with the soil and it will retain moisture better.

Both spinach and orach are well-suited to container growing for salad greens. The plants will get very large when they produce flower stalks, however, and will quickly outgrow their pot.

Planting

Spinach is sensitive to day length and will bolt when the days reach 13-15 hours long, so it is important to plant as early as possible to get good vegetative growth before flowering starts. Orach should also be planted early.



Healthy Bloomsdale Savoy spinach.

Plant only one variety of spinach and one variety of orach unless you are able to cage them. Remember that for seed saving they must be isolated from other varieties of the same species by 200 m.

Dig a trench about 5 cm (2 inches) deep; water it thoroughly and plant the seeds 1 cm (1/2 inch) deep. Space them about 3 cm apart, or closer if you intend to thin them for baby greens. The trench will help maintain moisture.

Watering

Use a fine spray or drip irrigation to keep the seeds and seedlings moist, especially while the seeds are germinating and the plants are small. Mulch will help the plants conserve moisture. Both spinach and orach may get bitter if they have insufficient water.

Thinning

For good growth, the plants should be thinned to 5-8 cm (2-3") apart. For seed saving, spinach should stand 20-30 cm (12 inches) apart and orach 40-50 cm (18 inches) apart. Orach can get up to 2 m (6 feet) tall and needs lots of space.

Pests and Diseases

Spinach and orach can be attacked by aphids, flea beetles, and slugs. The diligent gardener always keeps an eye out for problems so they can be dealt with early. Wide spacing and good air flow among the plants can ward off powdery or downy mildew. Spinach is subject to several soil-borne fungal diseases; symptoms include leaf lesions that enlarge and turn brown and papery. Many diseases can be avoided by using drip irrigation or other means to prevent water from hitting the leaves.

Seed Saving

Spinach can be caged or bagged if the plants can't be isolated from other varieties. The fine-grained pollen will go through any sort of mesh, but not through a cotton sheet or spun polyester cloth. A minimum of 2 male plants and 4 female plants should be bagged together, *before* the female flowers open. Drive a tall stake in the centre of the 6 plants or make a tepee of 3 stakes. Put the cloth loosely over the stakes and plants. The sheet will need to be secured at the bottom to prevent stray pollen and insects from entering. Wind will distribute the pollen among the plants under the bag, but on calm days the bags should be shaken.

Both spinach and orach have unusual reproductive characteristics. The seed saver will need to learn about them to obtain a good seed crop.

Spinach:

Spinach should be planted early so the plants are large and healthy before they start to flower. When the days get longer in late spring, the plants will bolt. You should make sure you leave at least 10 plants, preferably 20 plants, to produce seeds.

As with other wind-pollinated plants, the flowers are inconspicuous. Male plants tend to flower first. Some produce large amounts of pollen on short plants with few leaves. These are called "extreme" males. "Vegetative" males flower after the extreme males, and are larger and leafier. The largest plants in the bed are females. They produce flowers over several weeks. For successful seed production, temperatures should remain below 29°C; below 24°C is optimal.



***Spinach Plants:
Vegetative Male (left) and Immature Female (right)***

Orach:

Orach is very easy to grow and save seeds from. It is a notorious self-seeder, so if you grow it one year, you will probably have plants the following year. Only one plant is needed to produce seeds. However, for seed saving, a minimum of 5 plants should be grown, and preferably more. Plants that bolt early should be pulled out.

The plants get very tall before they produce flowers, so bagging is not practical. Isolation by distance (200 m) is the only way to make sure the variety you are growing does not cross-pollinate with other varieties of orach.



Like spinach, orach flowers are inconspicuous and arranged in clusters along the main and branched stems. The flowers open sequentially from the stem base upwards, so seed production occurs over a couple of weeks. It has two types of female flowers. One type has no sepals (the green flower bud covers) but has leaf-like structures called bracts attached to the flowers. The other type has sepals but no bracts. The flowers are small and difficult to see. The two different female flowers produce three different types of seeds.

Orach flowers with bracts.

The flowers with bracts but no sepals produce large yellow-brown seed pods containing yellow brown seeds (the best for seed saving). The flowers with sepals but no bracts produce small black seeds. Intermediate between these two types are small yellow-brown seed pods that contain black seeds. Black seeds require a dormant period and tend not to germinate well. It is thought that these different types of seeds allow the plant to survive in unpredictable environments.



Seed Harvesting and Processing

Both spinach and orach continue to flower and set seeds as long as growing conditions are favourable. Seeds on the lowest portion of the branch ripen first and then ripening progresses up the stem. This results in both mature and immature seeds on a plant. Generally, harvesting begins when about 2/3 of the seeds are mature.

For spinach, the seeds are mature when they turn from green to brown. For orach, the bracts turn from the same colour as the foliage to brown and papery. Individual branches can be cut or the whole plant pulled out. Then they should be put in a dry and airy place to continue to mature and dry, for about two weeks.

Stalks can be stripped of seeds by running a gloved hand down the stalks over a container to catch the seeds. Spinach seeds can then be rubbed between one's hands to break apart the seed clusters, and then winnowed.

The three different types of orach seeds can be separated by careful screening. Only the large bracted seeds are not dormant and should sprout easily when planted in spring. The dormant small bracted and black seeds could be planted in the fall; after cold stratification and a long dormant period, they should sprout readily in the spring.



Spinach seeds ready to harvest (left) and still green (right)

Record Keeping

Fill out an evaluation form for each variety. This information will help to decide which varieties should continue to be grown for the seed bank. It will also help determine whether the seeds you planted were “true,” not a hybrid.

If you keep a journal with notes on gardening activities, you will be able to remember when each variety was planted, how it grew, and whether you liked it.

Storage

Store seed bank seeds and your own in a paper envelope in a cool, dry place. Your seeds will last for years in the refrigerator if they are very dry and the envelope is in a jar with a tight lid.

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July 2021

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