



Spirit of the Sun: Three Sisters Seed Care

Hopi Red Dye Amaranth: An heirloom species, produces excellent protein-rich tiny black seeds. Starting seeds indoors, use a general seed-starting mix and sow seeds roughly 6-8 weeks before your average last frost date. Cover seeds lightly and keep them consistently moist at about 60 degrees Fahrenheit. After seeds sprout, place the plants under bright light to continue growing until they're ready to make the move outside. Make sure to harden off the seedlings to prepare them for outdoor conditions before transplanting them into the garden.



The average outdoor temperature needs to reach about 55 degrees Fahrenheit before you can successfully plant the seedlings outdoors.

Tasty seeds can be eaten raw, sprouted, toasted, roasted, or ground into flour for baking. Amaranth leaves can also be eaten as a leafy green or cooked with and have a flavor similar to spinach.

Amaranth is extremely important to Aztec people, who historically, not only received amaranth tribute payments from provinces surrounding their empire, but also believe it to be the food of the gods. It is as common as maize, beans, and squash. The leaves are ritualistically ground up to make tamales to be offered to Xiuhtecuhtli, the fire god, and the seeds were crushed and mixed with honey, agave sap or blood, formed into the shape of idols and ceremonially eaten. Unfortunately, in an attempt to repress Indigenous beliefs the Spanish invaders banned the cultivation of amaranth. However, wild amaranth greens continue to be harvested by Indigenous peoples throughout the Southwest and in Northern Mexico, their flourishing leaves being a symbol of the monsoon rains.

1. **Start Indoors:** 6-8 weeks before last frost.
2. **Germination:** 7-10 Days.
3. **Plant Outdoors:** 12-18" Apart.
4. **Light:** Sun/Partial Shade.

Hopi Blue Corn: Traditionally dry-farmed below the Hopi mesas. Deep rooted and drought tolerant, loves sandy soil. Blue kernels are ground to make piki bread. For the Hopi, piki bread made from Hopi blue corn seed is associated with the Katsinas who are the bringers of blessings, particularly rain, crops, and well-being. Katsinas give gifts of piki to Hopi children when they visit the pueblos and dance in the fields to bring in the monsoons.

Does well started in trays indoors and transplanted outside. Sow Hopi blue corn seeds in trays (98-128 cells work well) 2-3 weeks before last frost date. Sow seeds outdoors 1" deep after danger of frost. For best results, plant in 3 to 6 row blocks instead of a single row. Keep seeds moist however avoid over saturating seeds. Maturing crops prefer consistent watering in well-drained soil. Companion plant with peas, cucumbers, or pole beans; plants that like shade also do well with corn. However, avoid planting tomatoes near corn since they share similar pests, and compete for vertical space and nutrients.



- **Light** Full Sun
- **Plant Spacing** Thin 8" apart.
- **Fruit Size** 1-2, 7" Long Ears Per Stalk
- **Plant Height** 5-6' Tall
- **Germination** 5-6 days
- **Planting Time** Spring, Summer

Keep seeds moist however avoid over saturating seeds. Maturing crops prefer consistent watering in well-drained soil. Remove weeds so they do not compete for water and nutrients. To increase chances of proper pollination, hand pollinate by shaking the plants several times a day, to make sure the pollen reaches corn silks. To reduce problems with army worms, and corn ear worms, the organic compound Spinosad can be used on corn tassels and new growth once a week. This corn gets to about 5-6 feet tall.



Squash: Tender to frost, so it is possible to start squash seeds indoors. Once all frost has passed, seeds are able to sow directly into a well-amended and weed free garden bed. Quick to germinate, seedlings often emerge within five to seven days.

- **Light** Full Sun
- **Matures** 46 to 52 days after planting
- **Fruit Size** 4 to 10 Inches Long
- **Plant Spacing** 36 to 48 inches apart
- **Plant Height** Medium (24-48")
- **Planting Time** Spring, Summer

Squash Care- heavy watering will require frequent and consistent irrigation. Avoid overhead watering, this may lead to powdery mildew issues. The squash family battles several insects and pests throughout the growing season. Most common encounters include cucumber beetles, squash bugs, and squash vine borers. Infestations can lead to bacterial infections, wilting and loss of squash plants.

Seed Care Information:



Cross-pollination Information:



Who are the three sisters?

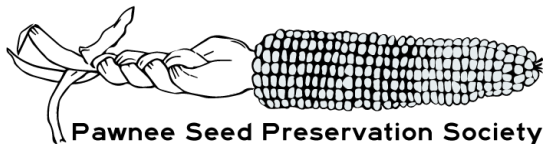
The crops of corn, beans, and squash are known as the Three Sisters. For centuries these three crops have been the center of Indigenous agriculture and culinary traditions. The Three Sisters are the physical and spiritual sustainers of life. They complement each other in the garden as well as nutritionally. Each plant protects and nourishes one another in different ways as they grow and provide for their cultivators and communities. Corn, bean, and squash nurture each other like family when planted together like Sisters.



Corn provides tall stalks for the beans to climb so that they are not out-competed by sprawling squash vines. Beans provide nitrogen to fertilize the soil while also stabilizing the tall corn during heavy winds. Beans are nitrogen-fixers meaning they host rhizobia on their roots that can take nitrogen, a much needed plant nutrient, from the air and convert it into forms that can be absorbed by plant roots. The large leaves of squash plants shade the ground which helps retain soil moisture and prevent weeds. These three plants thrive together better than when they are planted alone.

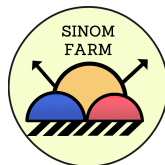
By the time Colonizers invaded Indigenous Peoples' land, food systems had already been developed from the North to the Southeast of the continent. Indigenous People efficiently utilized their abundant landscape to provide a nutritious diet. At the center of culinary traditions complete with stories, ceremonies and customs, the diet of corn, beans, and squash is complete and balanced. Corn provides carbohydrates, dried beans are rich in protein and have amino acids absent from corn. Squash provides different vitamins and minerals than corn and beans. These three crops are also important because they can all be dried not only as food but also their seeds to store and preserve to feed future generations. These traits are less important today, but were important in the past which lead to their significance as the major cultivated food.

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