



AVRDC - The World Vegetable Center

Fact Sheet

Saving Seeds of Tomato

Production

Tomato (*Lycopersicon esculentum*) grows best in the dry season under day temperatures of 21–25 °C and night temperatures of 15–20 °C. Vines will struggle to set fruit if temperatures exceed 30 °C. Humidity levels higher than 60% at the time of fruit maturity will increase disease problems and reduce seed yields. Seed production during the rainy season leads to poor seed quality. Avoid fields where the previous crop was tomato; this prevents the new seed crop from being contaminated with seeds from volunteer tomato plants. Growing tomato after paddy rice reduces the incidence of diseases and nematodes. Training of tomato plants generally results in early ripening, fewer diseases, higher yields and better seed quality.

Isolation

Isolation of plants is usually not needed and a single plant can produce thousands of seeds. Tomatoes produce perfect, self-pollinating flowers (Fig. 1). Anthers are fused together into a little cone that rarely opens until pollen has been shed and the stigma pollinated. Older varieties may have stigmas that stick out beyond the anther cone. Purity may be ensured by separating varieties with short styles (most modern varieties) by at least 3 m. Varieties with long styles (heirlooms and some cherries) need

at least 30 m to ensure purity. If solitary bees are prevalent, separate all varieties at least 30 m and place another flowering crop in between. Alternatively, bagging the whole flower cluster can prevent cross-pollination.



Fig. 1. Tomato flower cluster

Selection

Look for early maturing and attractive plants. Selected plants should be marked, staked, and inspected during the growing season for resistance to diseases.

Harvesting

Allow tomatoes to completely ripen on the plant before harvesting for seed (Fig. 2). Seeds from green, unripe fruits will be most viable if extracted after allowing the fruits to turn color, but this is not advisable.



Fig. 2. Tomatoes ready for harvesting

Processing

Cut each tomato into half at its equator, opening the cavities that contain the seeds. Gently squeeze out the jelly-like substance that contains the seeds (Fig. 3). Place the jelly and seeds into a small container for fermentation; add a little water if you are processing only one or two small tomatoes. Loosely cover the container and place in a warm place (around 25–30 °C) for 1–2 days, stirring daily.



Fig. 3. Extracting seeds by hand

A layer of fungus will begin to appear on the top of the mixture after a couple of days. This fungus not only eats the gelatinous coat that surrounds each seed and prevents germination, it also produces antibiotics that help to control seed-borne diseases such as bacterial spot, canker, and speck.

After fermentation, fill the seed container with water. Let the contents settle and begin pouring out the water along with pieces of tomato pulp and immature seeds floating on top. Viable seeds are heavier and will settle to the bottom of the container. Repeat this process until water being poured out is almost clear and clean seeds line the bottom of the container (Fig. 4). Pour these clean seeds into a fine-mesh strainer. Let the excess water drip out and invert the strainer onto paper towel, fine mesh, or newspaper.



Fig. 4. Rinsing seeds

Allow the seeds to dry completely in an oven (Fig. 5) or in partial shade (Fig. 6). Break up the clumps into individual seeds, label and store for later use.



Fig. 5. Preparing seeds for drying in an oven



Fig. 6. Drying seeds in partial shade

Storage

Dried seeds can be safely stored for at least three years. Storage pests are a problem if seed moisture content is high. Place seeds in jars, manila envelopes, cloth or mesh bags, plastic containers, or foil envelopes. The best containers are air-tight, such as a sealed glass jar, metal can, or foil envelope. Protect seed from sunlight.

Store seeds in a cool (below 15 °C is ideal), dry location. Place the seeds in a refrigerator for long-term storage. For short-term storage, keep the seeds in a cool, shady and dry place.

References

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