

Sustainable Agriculture

Organic Weed Management and Control

Why Control Weeds?

On any organic farm, particularly newer farms, it is likely that weed control commands a major part of the farmer's time over the course of the season. Why is this so important? There are several reasons:

- * Weeds compete with crops for water, soil nutrients and sunlight. In general, weeds are much more aggressive and successful at fighting for these needed elements, and cultivated plants suffer with poorer health and lower yields. Plants that are weak from weed competition are also more prone to diseases and insect damage.
- * Weeds can severely impede air circulation around crops. This can create very humid conditions that promote fungal growth and plant diseases.
- * Weed pressure can lower the marketability of crops. Fruits and leaves that rub against weeds are easily damaged and can lose their marketability. Insect and moisture problems associated with weedy crops can easily blemish fruits and leaves of crops.
- * Unmanaged weeds can provide habitat and a food source for many crop pests. On the other hand, carefully selected plant species, grown among your crops, can provide food and shelter for a wide variety of beneficial and predatory insects

When Should I Control Weeds?

There is no set schedule for weed control, but there are a few general "rules of thumb" that can make the task less of a chore and more successful.

- * The sooner the better! Weeds are easiest to knock back when they are small (preferably before you even see them).
- * It is often best to mow larger weeds rather than pull them. The root systems of weeds can intertwine with those of the crop, slowing the growth of or injuring the crop when they are pulled.
- * Do not allow weeds to go to seed! This is difficult, but many weeds create thousands of seeds on each plant creating a weed seed bank in your soil that can last for decades.
- * When mulching, lay your mulch as soon as possible after tillage or cultivation to discourage weed growth. Even tiny weed seedlings can find their way through a thick mulch if you let them sprout before mulching.
- * Remember that each time the soil is disturbed (planting, cultivating, tilling), new weed seeds are encouraged to germinate. Always cultivate as shallowly as possible.

How Do I Control Weeds?

There are many tools and techniques for successful weed control. Each farmer must experiment to find what work best for his/her farm. Some of the more commonly used methods and tools are:

- * Hand Hoeing - very commonly used on smaller farms. The best are types that allow the user to stand up straight while hoeing, reducing back strain. Also a hoe that slices with a sharpened edge works best. Stirrup hoes, Swan-neck hoes and Collinear hoes are some common types. You are unlikely to find good quality cultivating hoes at local hardware stores - ASD can help you locate a good source.
- * Wheel Hoes - cultivating blades mounted on a set of handles. These are generally wider than hand hoes and allow the farmer to quickly cultivate pathways and between rows of crops. Again, must be kept sharp to be most effective.
- * Rototillers - For weed control, shallow cultivating with a rototiller (either walk behind or tractor pulled) can be very effective.

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* Mowing - For tall weeds or "green" pathways, blade mowers and string trimmers can keep the growth short, reducing crop competition and maintaining good airflow. Be careful that flying bits of weeds do not damage or blemish crops.

* Tractor Mounted Cultivators - There are many types of cultivators available to vegetable growers, some simple, others very crop specific. There are generally two types: 1) "Blind" cultivators - these rake or disturb the entire soil surface, exposing and killing very small weed sprouts. Often these are used for pre-emergence weed control or with larger seeded, solidly rooted crops like corn, beans, peas, etc. 2) "In Row" cultivators - These are made to glide past or be guided along crop rows. They can range from simple "sweeps" and discs to elaborate "finger" and "spider" weeders.

* Organic Mulches - Organic mulches (leaves, straw, grass clippings, etc.) do not only suppress weeds, but also help to cool the soil and keep the soil moist beneath crops. Apply as soon as possible after disturbing the soil for maximum weed control. Mulches can also keep crops clean, by reducing soil splashing during rains.

* Plastic Mulches - create a barrier to weeds, but also to water - should be used together with drip irrigation. Also warms the soil, helping the growth of warm weather crops in the spring.

* Hand Weeding - often necessary when weeds "get away" or when weeds grow up through and around mulches. Be careful to disturb crop roots as little as possible.

* Flame Weeding - uses a propane torch to destroy the cell structure of young weeds, killing them without disturbing the soil.

Where Do I Control Weeds?

Methods for weed control will likely differ in different areas of the farm.

* Around Crops / Upon Beds - Weeding along the crop rows not only keeps weeds down, but it can also aerate the soil and promote better drainage. Often "hilling" crops while you cultivate can discourage weed growth at the base of plants and make your crops more stable. Be careful not to damage crop roots when cultivating. Mulching is commonly used around plants to conserve moisture and exclude weeds.

* In the Pathways or Vaults - Cultivation can be more aggressive in the pathways as there are no crop roots to worry about. A thick mulch often works well in pathways as well. Many growers plant a low-growing cover crop between crop rows - this helps reduce erosion during heavy rains, adds to the organic matter of the soil and reduces the amount of soil to be cultivated. Planted or weedy pathways should be kept mown to allow good airflow around crops.

* Outside of the Cultivated Fields - These areas are important for good weed control (and farm health), too. Weed seeds can get blown into, carried into or dropped into your fields any number of ways. Keep undesirable weeds mown down around crop fields before they go to seed. Strongly consider growing "beneficial insect" habitat around your fields - this can drastically improve pest problems in crops.