

Vermont Vegetable and Berry News – Sept. 23, 2008

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FALL WEED MANAGEMENT TIPS

(adapted from Dan Brainard, Michigan State Extension)

Fall is an important time to evaluate weed management. Note the location of problem weeds and think about crop rotation, tillage practices, cover crops, etc. to deal with them next year. Take particular note of any new weed species that may have shown up.



Hairy galinsoga warrants special attention, even hand-pulling, when it first appears in a relatively small area, to keep it from spreading. (It has a small white flower with a yellow center and black seeds.)

This is also a good time to take steps to minimize the number of weed seeds added to the soil. As crops come out of the field, the weeds left behind often sow seeds of future problems. For summer annual weeds like pigweed and lambsquarters, the short days of late summer stimulate seed production. Even small plants can produce thousands of seeds at this time of year which can last for decades in the soil. It is therefore important to till or disk fields as soon as possible after harvest to prevent seed maturation. Mowing can also be effective in slowing and reducing seed production, but growth and seed production from lateral branches can be problematic. If you wait too long to take action allow weed seeds to mature then tillage may be counterproductive, since burial often protects seeds from predation and decay. Weed seeds are a significant food source for many insects and bird species and can have rates of mortality of 75 percent or greater if left on the soil surface during the fall. So, mowing may be a better option once there are a lot of mature weed seeds in the field.

Winter annual weed seeds that have been dormant during the summer begin to germinate in the fall following vegetable crop harvest. These species overwinter and can quickly form a mat in the spring that can interfere with field preparation, slow soil warm-up, and compete with crop growth. Some winter annual weeds can also be important hosts of pests of vegetable crops.



For example, recent studies suggest that shepherd's-purse may host insects such as swede midge. To reduce problems with winter annual weeds, late fall herbicide applications or tillage are often more effective than spring operations. Late season cover crops can also help suppress winter annual weeds.

My recommendation: make it a priority to clean up your fields now, before too many annual weed seeds mature and you still have time to get a good catch of winter rye. A light tillage operation to create a decent seed bed for the rye will also kill many winter annuals and help promote the decomposition of crop residues that may harbor disease.

GOOD TIME TO LIME

(adapted from Long Island Cornell Extension Vegetable News)

Fall is the best time of the year to apply finely ground limestone in order to manage soil pH. The desirable pH for vegetable production is between 6.0 – 6.8. Low soil pH restricts the availability of phosphorous, increases the solubility of elements such as aluminum, which are toxic at high levels, decreases the availability of molybdenum and boron, and is usually associated with low levels of calcium and magnesium. Conversely, for most crops soil pH above 6.5 can also cause nutrient related issues. High soil pH can lead to zinc or manganese deficiencies in crops such as sweet corn, snap beans, spinach, beets, onions, and tomatoes. Choosing between dolomitic (high magnesium) and calcitic (high calcium) limestone depends on your magnesium level in the soil and whether or not magnesium is needed. Both dolomitic and calcitic limestone provide calcium but calcitic limestone provides very little to no magnesium. It is recommended to use dolomitic limestone unless magnesium levels in the soil test high. If you are looking to increase calcium levels in the soil but not soil pH, gypsum (calcium sulfate) is an option. Gypsum will supply calcium without affecting soil pH.

PLANTING GARLIC

(adapted from Univ. of Minnesota Extension)

Time of planting is critical since both optimum shoot and bulb development require a cold treatment. Garlic should be planted within one to two weeks after the first killing fall frost. Ideally, roots should be developing and shoots should be emerging from the clove - but not above the soil - at the time of the first hard freeze (28°F). Generally, cloves planted in double row beds 30 inches apart on center and six inch spacing within and between rows in the beds results in good bulb size and yield. Some growers will plant four to five row beds on 3 ft. to 4 ft. centers with six-inch spacing; however, plants in the middle of the bed will compete for light and nutrients, which may result in smaller bulbs than for those on the edge of the bed. Other options include single rows spaced 30 inches apart and cloves spaced six inches apart within the row. This wide spacing between rows allows for easy mechanical cultivation for weed control. In general, close spacing results in high yield but smaller bulbs, while spacing farther apart will result in lower total yields but larger bulbs. Typically, yields of garlic planted in double rows 30 inches apart will range from three tons to five tons per acre. Higher yields can be attained with closer spacing and good weed control.

The amount of garlic to purchase will depend on the area to be planted, spacing, and variety. Some varieties have more plantable cloves per bulb than others. Generally, there are about 50 cloves per pound of cloves. Therefore, garlic spaced at six inches within a row 100 feet in length will require approximately four pounds of cloves or four to five pounds of bulbs. Generally, seed cloves from one pound of garlic bulbs will yield between four and eight pounds of harvestable bulbs. This will also vary, of course, with growing conditions and variety.

Individual cloves should be separated from the bulb the day of or up to two days before planting. Cloves separated for longer than two days tend to dry out. Generally, larger cloves from larger bulbs will produce the largest bulbs. In some varieties, large cloves may be actually two cloves fused together, known as a "double." These doubles will produce two bulbs that become flattened as they grow together. The result is less marketable, poorly shaped bulbs. Double cloves are more prevalent in certain hardneck varieties, such as German Red and other Rocambole types, compared with softneck varieties. Cloves should be planted with the pointed side up. Cloves planted upside down will develop a curved shoot that results in misshapen bulbs. Avoid planting cloves that show signs of disease. In general, a four to five year rotation is recommended to minimize spread of soil borne diseases.

OPTIMIZING RASPBERRY YIELDS

(adapted from Pam Fisher, Ontario Ministry of Agriculture)

Raspberries are notorious for not reaching their yield potential, and yields vary tremendously from farm to farm and year to year. To optimize yields, attention to detail is important with regard to microclimate, irrigation, pruning, and pest management.

"Warm roots, cool shoots" simplistically describes the conditions raspberries like for optimum growth. When air temperatures are warm (i.e. > 77 F) photosynthesis slows dramatically. However, raspberry roots appear to grow better in warm soils. Growers can use black plastic mulch over the raspberry row in the planting year to warm the soil. This mulch helps to conserve soil moisture, control weeds, and encourage strong root development. After the first year, the benefits of plastic mulch are reduced, because of shading. As the plastic breaks apart, primocanes are able to grow up and fill the row. Straw mulch is not as useful for raspberries, partly because it keeps the soil cool, and partly because damp conditions around the crown can encourage Phytophthora infection.

Windbreaks are important around a raspberry planting. Plants in windy sites have shorter canes and smaller foliage. Fruit can be easily damaged by wind. However, winter injury can be worse near windbreaks and hedgerows. Plan your windbreak so it breaks the wind but doesn't prevent cold air drainage out of the planting. There should be about 50% barrier and 50% airspace in a good windbreak.

In most years, berries benefit from irrigation. Trickle irrigation is preferred to overhead irrigation, because overhead irrigation spreads diseases. Raspberry roots typically extend 1.5 to 4 feet deep, but most water is taken from the top 4 inches. If the soil in this area dries out, the lower roots cannot increase water uptake to make up the difference. Growers should monitor soil moisture on a regular basis to provide just the right amount. An inch of water/week is only a guideline for irrigation amounts. The actual water needs go up or down depending on the soil type, weather conditions and stage of crop growth. The most critical time for irrigation in raspberries is from pre-bloom through the green fruit period. Primocanes, fruit and roots are all competing for resources at this time.

In a typical planting, where rows are 8 to 9 feet apart, prune out raspberry canes in late winter or early spring to approximately 10-15 canes per 3 feet of row. Where rows are further apart, cane numbers should be increased. Over the whole area, the optimum cane number is about 6-8 canes per square yard.

Cut back the fruiting cane tips to a convenient height for picking. Be sure to cut off dried up fruiting clusters from the tips of Nova and Prelude. Use a mower for summer pruning of primocanes along the row edges. The earlier these shoots are removed the better.

After harvest, old fruiting canes should be removed from the row. We used to think that this job should be done as soon as possible after harvest. However we now know that nitrogen and other nutrients are transported out of fruiting canes after harvest, back to the crown. There is also anecdotal evidence that, in a marginal year, winter injury can be worse on varieties pruned right after harvest. On winter sensitive varieties you should probably delay pruning out the fruiting canes until the plants are dormant.

Make sure that canes are pruned close to the ground. Do not leave long pruning stubs. Several insects overwinter in the lower portion of fruiting canes, and careful pruning can help control these pests. Also, old cane stubs are a source of spores for some diseases.

To manage cane diseases lime sulfur should be applied in the spring, between bud break and 1/4 inch green. This fungicide works on the overwintering fungus as it starts to grow. Application too early is not as effective. Application too late can cause leaf burn. Winter injury can be much more serious in plantings with significant levels of cane diseases.