

REDUCING WEEDS IN BERRY CROPS

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Berry growers have many pest challenges growing their crops, and weeds are often at the top of the list. Whether you are producing berries organically, on plasticulture or conventionally, there are many things you can do to reduce weeds in your crops. Many of the suggestions below refer to strawberries but some of these ideas will also apply to raspberries, blueberries and other bushberries.

If we had the perfect herbicide – one application each spring, controlling the whole spectrum of weeds for the entire season, with no crop injury and no risk to the environment – we wouldn't even be talking about this. But we know that each of the herbicides we use has its limitations, and each treatment can fill one niche of our weed management program. Even the newer reduced risk herbicides in development do not offer the prospect of perfect weed control in berries – so we need to focus on an integrated weed management program – and an important aspect of integrated weed management (IWM) is reducing weeds in your fields.

Site Selection

Every grower knows which field has the lowest weed pressure. This is important for annual weeds like pig-weed and lambs-quarters, but especially important for perennial weeds like nut-sedge, ox-eye daisy, and toadflax, where we don't have good herbicide options. Some farms are limited by soil type in where they can rotate berries, or prefer using well-placed fields for retail or PYO visibility. If you have to return to fields with high weed pressure, it is important to focus efforts on cleaning up weeds before you plant. *(Note: Where there are problems, invest in clean-up before you plant to reduce headaches later!)*

Crop Rotation

The longer I am in business, the more respect I have for the benefits that can be achieved by a well-planned rotation, especially when planting perennial crops like berries. Berry growers have used long rotations to reduce disease, nematodes or insects, but a good rotation can also reduce weed pressure. Growing field corn can give you many options of effective herbicides to reduce weed populations in general *Note: lots of postemergence control options here*). Including a winter cereal can break the life cycle of many weeds, and also gives you the option of an inexpensive treatment like 2,4-D or Buctril to clean up broadleaf weeds like thistles or dandelions. Growing Round-up Ready crops like soybeans can reduce annual weed pressure from pig-weed, lambs-quarters and annual grasses, especially if 2 applications are used. And some cover crops can be used to suppress in general. Ensure that herbicide residues from previous crops will not harm berries though.

Preplant Cleanup

The year before planting berries should be focused on all the opportunities to reduce weeds. A spring burndown with glyphosate is a good start. Weed scouting, spot treatments *(Note: timing for these is often critical e.g. bindweed- should be done while flowering)*, and effective herbicides are very important in the preplant year. In the fall, glyphosate, amitole or 2,4-D applications can effectively reduce many perennials or winter annuals.

Stale Seedbed Technique

Consider setting your field up to plant as a stale seedbed, to plant without tillage. *(Note: Works best with sandy to sandy loamy soils, not clay based soils)*. A cover crop like rye should be established early the previous summer or fall. Plant a higher seed population and fertilize enough to establish a thick and uniform cover crop stand. Once growth starts in the spring, a burndown glyphosate treatment should be applied. To cut through the killed cover crop, fluted coulters and heavier press wheels can be added to your transplanter. Ensure irrigation is used after planting to help transplants establish. Herbicides can be used in no-till plantings similar to tilled plantings *(Note: herbicides as usual)*. Research trials in Ontario results in good stands with little weed emergence for several months *(Note: up to 15 weeks)*.

Manage Field Edges

Many problem weeds in berries like thistles, dandelions and groundsel move in from field edges. Did you know that a weed growing in a small area of soil outside of your crop may produce 10 to 150X more seeds than a weed

growing in the crop canopy? Plan some time each month to either mow weeds before they flower and seed, or use directed flaming or burndown herbicide on all edges of fields. Ditches beside your fields may also be a source of weeds, but herbicide options are limited if water is present – physically removing weeds may be required. *(Note: Whatever you do, prevent seed shed!)*

Spot Treatments

Many weed problems start in patches, but once they spread through the field, you wish you had targeted the spot where they started. Invest in some equipment dedicated to spot treatments e.g. a good hand sprayer, a wick wiper, a hand flamer and a dripper *(Note: preferred/used most often by speaker, 10L, approx. \$60)*, and charge them so they are ready to go. Plan the time to walk your field in May, June, and the fall, as well as any time weed regrowth is ready for treatment. Most growers find satisfaction with spot treatments, stopping weeds dead in their tracks.

Chemical renovation

This technique has proven effective in Ontario where common groundsel became the predominant weed problem. After harvest, Gramoxone is directed between the rows to kill weeds in the mulched area, as well as to narrow rows. Shields should be mounted between each nozzle to prevent drift onto the crop row. After application, renovation is completed as usual; rows are mowed down, fertilizer applied, and herbicides applied, but no soil tillage is used. Chemical renovation will drastically change the weed spectrum, so be aware that perennial weeds may enjoy the undisturbed soil. Also, because no soil is thrown up on the crown, this system may not be suitable where crown heaving is a problem.

Clean Mulch

Avoid introducing problem weeds into your fields with your mulch. Whether you grow your own straw or purchase it, it is very important to use straw that is free of weed seeds and cereal grains. *(Note: Inspect fields before buying/harvesting esp. for Quackgrass; prevent weed seeds in storage)* Some growers have paid custom growers to apply hormone herbicides each spring on the cereal to control broadleaf weeds like dandelion and thistles. However, applying preharvest glyphosate on cereal where straw will be used for strawberry mulch is NOT recommended. We have had several incidents in Ontario and Quebec where glyphosate residues remained on the straw, and damaged strawberry plants as they grew through the mulch the next spring *(Note: weak, spindly growth)*.

Plasticulture

Growing strawberries in plasticulture totally changes the weed problems. The black plastic mulch prevents weeds on the beds and between the plants, and tillage, flaming or mulching can control weeds between the beds. In plasticulture, common weeds like pigweed and lambs-quarters are rarely a problem. However, weeds can establish around the planting hole, especially winter annuals, so prevention is important. Hand pulling and wick wiping can be quick and effective to remove these weeds when they are small.

Banding Fertilizer

Weeds flourish under high soil fertility, so reducing their access to fertilizer can give your crop the advantage. Banding fertilizer at planting, at renovation, and again for the Labor Day nitrogen can reduce weed growth in other areas of the field. Equipment modifications like shielding will be required, but the fertilizer expense can be reduced.

Trickle Irrigation

Although common in raspberries and blueberries, strawberry growers have been reluctant to adopt trickle irrigation due to the large numbers of emitters and tubing required, and the need for sprinklers for frost protection. However, where applicable, restricting water to only the crop area will reduce weeds between rows (well, not in a wet year like 2006, but under “normal” dry summer conditions).

Weed Scouting

Most IPM scouts are trained to look for insects and diseases, but additional scouting for weeds may pay dividends. Scouts need to learn to identify weeds at cotyledon or young stages, and should map each field showing weed locations and types. Unknown weeds should be collected and identified. Weed scouting and mapping can help identify sources of weeds (see field edges above), and over the years, can help when planning your weed management strategies by field.

I've talked about a dozen options to reduce weeds in fields, and I am sure there are more that have been useful to your operations. No single one of these will totally control your weed problems. However, using all applicable options, in addition to your herbicide, tillage or mulching treatments, will contribute to a more successful IWM system for your berry crops.

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