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Spring Burndown Considerations

With planting season rapidly approaching, early emerging summer annual weeds and winter annuals are on the no till farmers' lists of challenges to address before planting begins. These weeds will need to be controlled in order to keep a clean planting bed, reduce weed competition during crop emergence, and help maintain soil moisture at planting time. Conserving soil moisture is of particular importance following drastic drought periods northeast Missouri faced in the fall of 2022 and the entire year of 2023.

Spring burndown applications begin four to six weeks prior to planting, and depending on seed trait technologies the producer uses, can extend up to planting time. Producers who use cover crops, such as cereal rye, often plant into green standing cover and apply a burndown herbicide application at the time of planting, alongside a residual chemistry product.

Applying burndown herbicides a month prior to planting, allows weeds to break down making it easier to plant. However, the further out a burndown application is made, the likelihood of having to make an additional application will be increased. Scouting is important and can influence the decision of when to apply burndown herbicides, particularly when working with weed species such as marestail.

It is important to include residual activity herbicides at the time of burndown to prevent large flushes of early summer annual weeds. Producers must check labels for pre-planting intervals and plant back restrictions for the pesticides used. Temperature has a drastic effect on herbicide control of weeds. Weed reactions to pesticide applications will generally be slower in cooler spring weather, especially when glyphosate is used. It is best to target burndown applications in the spring when daily temperatures are above 55 degrees and night temperatures do not fall below 40 degrees.

Common chemistries used in spring burndown applications include glyphosate, 2,4-D, dicamba, glufosinate (Liberty®, Cheetah®, Interline®), saflufenacil (Sharpen®, Verdict®, Zidua Pro®), tiafenacil (Reviton®), and paraquat (Gramoxone® SL, Helmquat®). There are also many residual herbicides that have foliar activity and can be combined with common burndown chemistries. Examples include atrazine, mesotrione, and metribuzin. Residual herbicide usage is extremely important when trying to control weeds, such as common lambsquarters, giant ragweed, waterhemp, palmer amaranth, and marestail.

Depending on marestail growth stage at the time of burndown, adjustments will need to be made to the tank mix to properly control the pest. Improper herbicide selection and application once marestail has bolted will only kill back the top of the plant, resulting in vegetative regrowth, rendering control strategies unsuccessful.

Synthetic auxin herbicides, such as 2,4-D and dicamba, generally control marestail better at the rosette stage than once it has bolted. The addition of glufosinate as a tank mix partner with either 2,4-D or dicamba, will yield better control of marestail once it has bolted.

The addition of saflufenacil as a tank mix partner can aid in the control of glyphosate resistant marestail populations. Applying at the higher label dose rate will also have residual activity for broadleaf weed control. When saflufenacil is used with glyphosate as a tank mix partner in place of 2,4-D, the preplant application interval of 2,4 -D is negated. Halauxifen (Elevore®) is another preplant burndown chemistry that works well with glyphosate on marestail control. Always check product labels before mixing and applying pesticides and perform a jar compatibility test if the label does not specifically state the chosen products are tank mix compatible.

Source: [*Nick Wesslak, agronomy specialist*](#)



Can Missouri Farmers Grow Watermelons to Reach the Fourth of July Market?

The answer is yes, but there are some points to consider. This article provides information from a study that demonstrated watermelon can be planted under protected production systems (low tunnel and caterpillar high tunnel) in Missouri, early enough to reach the Fourth of July market window with expected premium prices. Securing a share of the Fourth of July market may increase the sustainability of small and medium-size specialty crop farmers with direct sale markets.

This study was funded by a Specialty Crop Block Grant (MDA-USDA-AMS) and was conducted in 2021 and 2022, at the Horticulture and Agroforestry Research Center (HARC) in New Franklin. Three production methods were compared: 1) watermelon grown under caterpillar high tunnels covered with greenhouse plastic film, additionally in 2022 with low tunnel inside the high tunnel; 2) watermelon grown under low tunnels made of wire hoops and covered with spun-bonded row cover (1oz/sq-yd); and 3) uncovered open control. The watermelon cultivar Yellow Doll is a small melon (individual size) for early harvest (70-75 days to maturity). Greenhouse transplants with 2-4 true leaves were field planted on

black plastic mulch and drip irrigation. The goal was to plant in the tunnels the first week of April, but planting was delayed in 2021 to April 23 to avoid freezing events which would have affected the uncovered open control. This planting postponement delayed harvesting time beyond the target Fourth of July market in 2021. Therefore, in 2022, the high and low tunnels were planted the second week of April, which were subjected to a couple of freeze events. The uncovered open control was planted the last week of April after the freezes had passed.

The environmental conditions in the high tunnels were managed by opening and closing the sides of the tunnels depending on weather conditions. Temperatures inside the high tunnels reached maximum temperatures over 125°F on several sunny days. Nighttime temperatures inside the high tunnel were 10°F warmer (38°F) during freezing events (28°F). High tunnels were opened permanently when female flowers appeared to allow for pollination and fruit setting. In general, male flowers appear first and after a couple of weeks female flowers develop. If there are no beehives near the tunnels, then, bumble beehives can be set inside to insure pollination. Row cover in low tunnels stayed on continuously for three to four weeks until female flowers started to appear and then was removed permanently for pollination. Like the high tunnels, temperatures inside the low tunnel reached maximum temperatures over 120°F on sunny days, also they were not as warm during cold nights. Minimum temperatures were only 1°F to 3°F warmer inside the low tunnel than outside during freezing nights. Temperature differences vary with the thickness of the row cover material and weather conditions (wind, relative humidity, rain/snow, etc.). Two to three layers of row covers or thicknesses of 2-3 oz/sq yd can increase protection during freezing events. However, removing the extra layers on warm days is necessary to avoid excessive shading. Differences in temperature among the three production methods influenced plant growth and time of pollination and harvest. The largest plants were under the high tunnels, then under the low tunnels, and the smallest plants in the uncovered control.

Harvest of Yellow Doll began one to two weeks before the target Fourth of July market in 2022 because of the early planting (**Figure 1**). In 2021, harvest started the week after the target market date for high tunnel and two weeks after for low tunnel and open control. In this study, 8% of the total marketable melons from the high tunnel were harvested two weeks before the target date. Then, an additional 21% of the marketable melons from the high tunnels and 15% of the marketable melons from the low tunnels were harvested one week

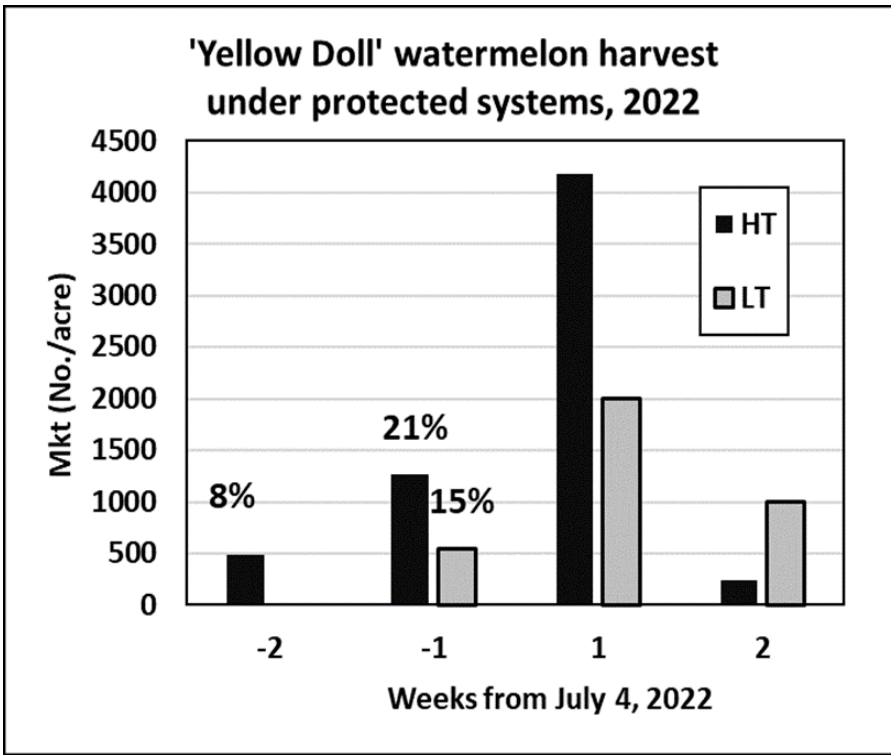


Figure 1. Proportion of marketable watermelons harvested from high tunnels (HT) and low tunnels (LT) treatments prior to the target Fourth of July market in 2022.

before the target market date. The rest were harvested after the target market date. Harvest from the uncovered control in 2022 was lost to wildlife. In addition, watermelons grown under high tunnels had the largest yield both years. Similarly, yield of watermelons grown under low tunnel were larger than the uncovered control in 2021. Therefore, protected production systems also have the potential to increase yield.

In summary, there is potential to produce watermelons under protected production systems for the Fourth of July market in Missouri. To accomplish this: use early varieties (70 to 80 days to maturity), plant in early April with transplants grown in greenhouses, manage the systems properly to protect against cold/freezing temperatures and ensure good pollination. Direct marketing may be necessary to obtain premium prices to cover the extra costs.

Source: *Ramón A. Arancibia, Kathi Mecham, Joni Harper, and Cheryl Recker, MU extension specialists*

Spring in the Yard and Garden

Vegetables

Cool-season vegetables like spinach, lettuce, kale, and other leafy greens, should be direct seeded into garden beds by the first week of April for harvest in May. Cruciferous vegetables like broccoli, cauliflower, cabbage, and Brussels sprouts are best set out as transplants in early April. Planting too late in the spring is the biggest mistake gardeners make when planting cool-season vegetables. The warm temperatures retard growth and cause plants to turn yellow, bolt, or flower, and set seed rather than producing an edible head of broccoli, cauliflower, or cabbage.



Remove weeds and dead growth from the asparagus bed before new spears emerge. Asparagus plants usually start producing spears in April. New asparagus and rhubarb roots can be planted as soon as the ground can be worked.



Set out onions and plant potatoes in early April, but

wait until May to plant sweet potatoes, which prefer warmer weather. If short on space, potatoes can be planted in large containers. Scabby lesions, called potato scab, sometimes appear on the skins of potatoes. This tends to occur in alkaline, or higher pH soils. If potato scab has been a problem in the past, amend the soil by lowering the pH with soil sulfur. A soil test will provide accurate recommendations for lowering the pH. Wait until early May to plant warm-season vegetable crops.

Fruits

Uncover strawberry beds as the weather warms, typically late March or early April is ideal. Uncovering too early can be harmful if temperatures fall into the teens. Keeping straw mulch on too long can result in smothering of the plants and delayed flowering. Pruning of all fruit trees and plants should be finished by now. For pest-free, disease-free fruit like, apples, cherries and peaches, a spray schedule must be followed immediately after bloom through July 1.

Ornamentals

Clean up dead foliage in flower beds before new growth begins. Cleaning up beds will help eliminate overwinter pests like the iris borer and diseases. Apply pre-emergent herbicide to beds to keep henbit,

chickweed and other winter annuals from germinating and taking over. Divide summer and fall blooming perennials now. The rule of thumb for dividing is plants that bloom in the spring should be divided in the fall, and plants that bloom in the fall should be divided in the spring. Cut ornamental grasses back to the ground as new growth begins. For early spring color in containers, choose from the many varieties of pansies, snapdragons and Sweet William that are available. These flowers prefer cooler weather and do well in containers or garden beds. Pull back mulch from chrysanthemums and roses as days get warmer. Cut back dead growth on mums. Many rose growers suggest waiting until forsythias start to bloom before pruning roses. Remove one-third of the oldest canes. This helps keep the plant from becoming an overgrown thicket of poor-flowering canes.

Lawn Care

Pick up sticks and do a cleanup of the yard. Mow lawns to remove old, dead growth before new growth begins.

Apply crabgrass preventer before April 20 in northern Missouri. Do not treat areas that have been planted with new lawn grass seed. Crabgrass preventer will kill all seed in a lawn. It cannot distinguish between crabgrass seed and lawn seed. If not treated, seed bare areas or thin spots by mid-April. A fescue blend is recommended for north Missouri lawns. This is a blend of different fescue cultivars. Cover with straw and keep moist. Wait until fall to seed an entire lawn for best results.

Source: *Jennifer Schutter, horticulture specialist*

