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Chemical Control of Mugwort in Asparagus

INTRODUCTION

Asparagus (*Asparagus officinalis*), a member of the *Asparagaceae* family, is an important perennial vegetable crop. Most US commercial asparagus production occurs in California, Michigan, New Jersey, and Washington. According to USDA, 20,005 acres of asparagus were planted, and 5,543 tons of asparagus was produced in 2022. Asparagus is normally planted in the spring and the plants are allowed to grow in the first year. In the second year, spears may be harvested for two weeks. During the third and subsequent years spears are harvested for six to eight weeks with 22 to 25 pickings per season. Typically, an asparagus stand occupies the same site for 12 to 15 years (Kuack 2020). Growers do not normally till asparagus fields. As a result, perennial weeds such as bindweed, mugwort, and yellow nutsedge start invading the asparagus fields.

Picture 1: A young Mugwort plant.

Mugwort (*Artemisia vulgaris* L.) is a highly invasive perennial plant (Picture 1). It was introduced from Europe into North America more than 400 years ago as a medicinal herb (Fernald 1900). Historically, mugwort occurrence was confined to roadsides, floodplains and riparian areas, rights-of-way, and turf and landscape settings. Recently, it has begun encroaching into annual row crops such as corn, cotton, soybean, pastures and hayfields, and various vegetable crops including asparagus. In addition to competition for water, nutrients, light, and space, mugwort also releases allelochemicals which adversely impact the growth and development of the surrounding vegetation. Mugwort reproduces sexually through seed and vegetatively by underground stems called rhizomes. However, it colonizes a habitat mainly via rhizomes. Due to its perennial growth habit and an extensive underground rhizome system, it resists control by mechanical as well as chemical methods.

CONTROL

In asparagus, mugwort can be managed before, during the spear cutting season or immediately after the last harvest with herbicides like clopyralid or glyphosate. However, the depletion of rhizome biomass is critical for effective long-term management. The fall application (September-October) of a systemic herbicide like glyphosate or clopyralid results in rhizome kill because at this time of the year

herbicide is translocated to the underground rhizomes along with the downward moving energy reserves. Repeated herbicide applications over multiple years will be required for satisfactory mugwort control or to prevent its re-invasion.

Clopyralid (Spur®):
Spur® is a selective postemergence herbicide for control of several annual and broadleaf weeds growing in asparagus. Spur® does not control grasses or sedges. It can be applied before or after the asparagus cutting season, or after the harvest is complete, but prior to the fern growth. Apply Spur® at 2/3 pint per acre in 10 to 20 gallons water per acre when mugwort is 8 to 10 inches in height. Treatment before and after this height resulted in poor control (Day et al. 1997). When Spur® is applied during the spear harvest season, some twisting (crooking) of spears may occur. Therefore, do not apply Spur® during the cutting season if crooking cannot be tolerated. Clear cutting of spears just before Spur® application may reduce the chance of crooking. **Do not harvest spears for a minimum of 48 hours after Spur® application**. For post-harvest control of mugwort and other perennial broadleaf weeds, apply Spur® as soon as possible after cutting. A delayed application when spears are longer than 3 inches may result in malformed ferns. Do not cultivate the field or mow mugwort for at least 2 weeks following Spur® application.

Glyphosate 41% (Glyphosate 4 plus):
Glyphosate can also be used for mugwort control in asparagus. It can be broadcast at 128 to 160 fluid ounces per acre in 10 to 15 gallons water over the entire area in early spring (at least 7 days prior to spear emergence) or after the last harvest (Aulakh 2020; Parker 1980). Treat mugwort (if already emerged) before the asparagus spears begin to emerge or immediately after the last harvest when all asparagus spears have been cut off just below theground level. Spring application should be made at least 7 days prior to the anticipated emergence of spears. Do not allow spray contact with the asparagus spears or ferns, as serious plant injury may occur. During the last harvest, snap all spears 1/2 inch below the soil line, so no spears are above ground, then immediately (within an hour) treat the mugwort infested areas with a glyphosate product. **Do not harvest spears for a minimum of 5 days after Glyphosate 4 plus application**. Glyphosate 4 plus may be substituted with any other glyphosate formulation containing 41% active ingredient.

The mentioning of trade names in this publication is solely for the purpose of providing specific information. The CAES does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other products of suitable composition. Always consult the pesticide label before making an application.

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