









Goldenrod Management in Wild Blueberry

Description

Several goldenrod species occur in wild blueberry fields. All are herbaceous perennials that reproduce by seed and underground stems called rhizomes. Expansion of goldenrods occurs mainly by growth and expansion of rhizomes, resulting in dense patches that are especially common in wet areas and bare spots. Goldenrods are aggressive weeds that can reduce yield potential and hinder harvest. The most common weedy species in blueberry fields are Canada goldenrod (*Solidago canadensis* L.), narrow-leaved goldenrod (*Euthamia graminifolia* (L.) Nutt. ex. Cass.), and rough goldenrod (*Solidago rugosa* Ait.).

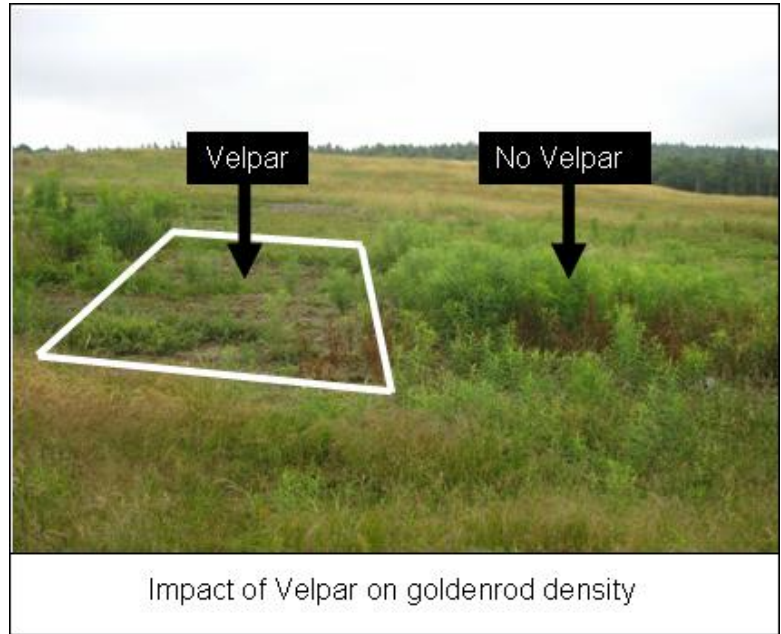
Species	Flower Head	Leaf Shape
Canada Goldenrod •Tall perennial up to 1.5m •Leaves toothed with 3 prominent mid-veins •Cone-shaped flower head •Blooms July to September		
Narrow-Leaved Goldenrod •Tall perennial up to 1.0m •Leaves narrow with smooth edges •Flat-topped flower head •Blooms August to September		
Rough Goldenrod •Tall perennial up to 1.5m •Hairy stems with lots of leaves •Toothed leaves with single mid-vein •Cone-shaped flower head		

Management

The expected pattern of carbohydrate movement in goldenrods at specific growth stages is explained in the figure at the end of the factsheet. The arrows indicate the direction of carbohydrate movement from the rhizomes to the developing shoots (↑) or from developed shoots back to rhizomes (↓). The red color illustrates potential windows of opportunity for control. Effective management depends upon proper timing.

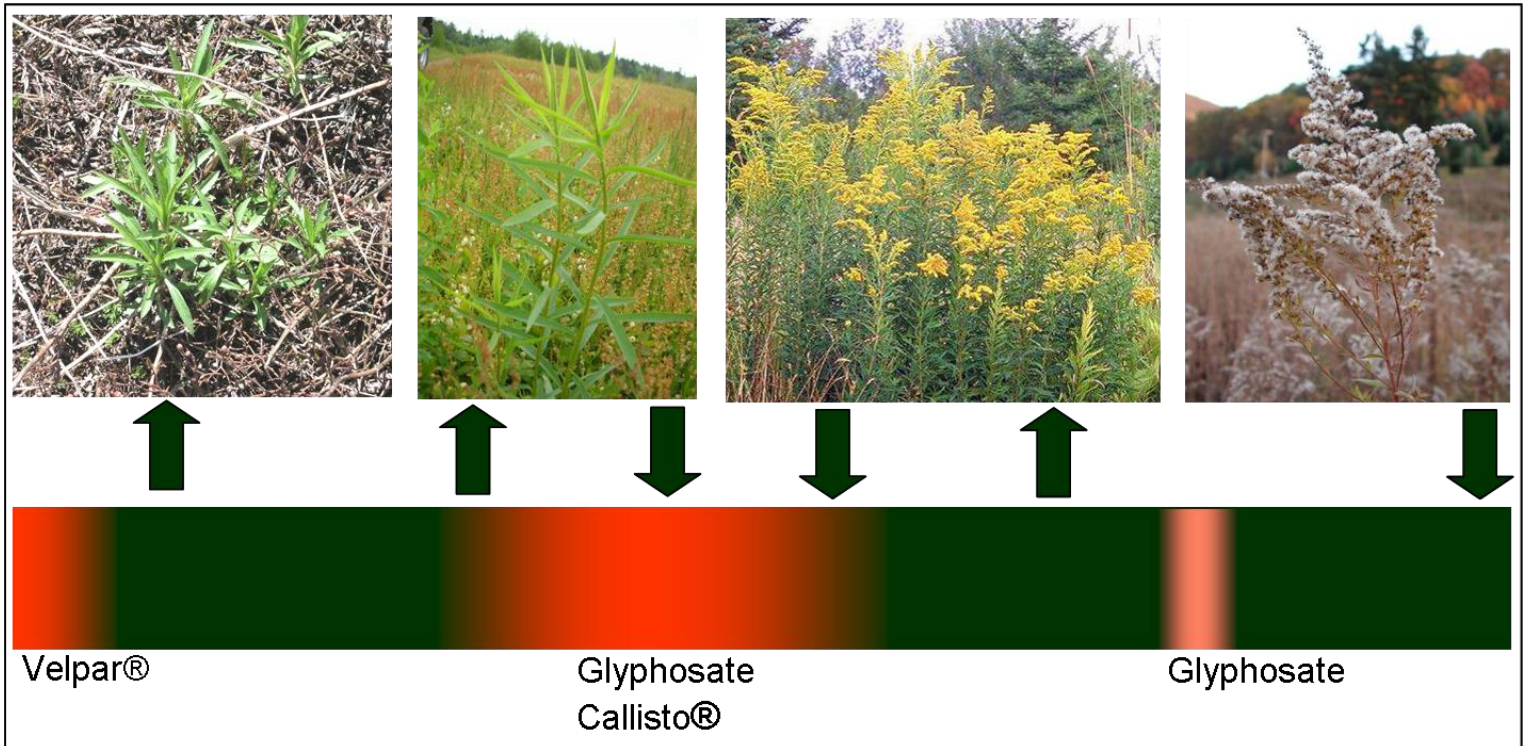
Physical Control. There are limited physical control options for goldenrods in blueberry fields due to the perennial nature of the weed and the crop. Biannual mowing is not an effective management technique and goldenrod shoot density may increase following pruning. Shoots taller than the blueberry canopy can be hand-pulled or mowed. Physical control of goldenrods is most effective when conducted before developed shoots begin to replenish rhizome food reserves. This generally occurs when the shoots reach one third of the total expected height. Repeated pulling or clipping will be necessary to deplete food reserves in rhizomes and it will take several years to obtain adequate suppression. Crop year pruning of goldenrods just above the canopy 2-3 weeks prior to harvest will enhance harvest efficiency and prevent seed production.

Broadcast Herbicide Applications. Velpar® (hexazinone) and Callisto® (mesotrione) can be applied as broadcast applications to control goldenrods in blueberry fields. Velpar® is applied as a pre-emergent product (before weeds emerge) in the spring of the prune year and is activated in the soil by rainfall. Sprout year applications of Velpar® will reduce goldenrod density in both the sprout and crop year. Most goldenrod species are still sensitive to Velpar® though complete control is rarely achieved.



Callisto® is generally applied as a post-emergent product (after weeds emerge) and can only be applied in sprout year wild blueberry fields. Callisto® should be applied when goldenrods are at least 10cm tall but before flowers fully open. Goldenrods may re-establish if Callisto is applied when the shoots are very small (less than 10 cm tall). Timing can vary depending on year, but applications are generally made by mid-June. Plants will turn white and begin to die within 1-2 weeks after application. Callisto® can also be applied as a pre-emergent product (before weeds emerge), but results from research trials have been less satisfactory when compared to post-emergence applications. Callisto® is most effective when it follows a Velpar® application

Spot and Wiper Herbicide Applications. Several herbicides containing the active ingredient glyphosate are registered for weed control in blueberry fields. Glyphosate products are generally applied as directed (spot) applications or with selective roller/wiper applicators to treat weed growth above blueberry plants. Goldenrods should be treated when food reserves are being translocated to rhizomes, either just before flower bud formation or after seed set. The window for applications after seed set is smaller in the fall as foliage does not tolerate killing frosts.



Growth stage and expected carbohydrate movement in weedy goldenrod species in wild blueberry fields

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Photos obtained from VMRP and AAFC

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