

When should Betamix be tank-mixed with glyphosate in RR sugarbeet?

Betamix herbicide has been moved from the Cooperatives to on-farm storage. I receive two questions: a) how long can I store Betamix and; b) when you suggest I use Betamix? Betamix will store indefinitely provide it is secured in dry and heated storage. At this time, the only available Betamix is what we have in storage. Thus, I suggest you save it for unplanned emergency weed control conditions. I will suggest a few situations in the following paragraphs.

Betamix is a postemergence herbicide for the control of annual broadleaf weeds in sugarbeet including kochia, pigweed species such as Powell pigweed, redroot pigweed and waterhemp, lambsquarters and common ragweed. Betamix is a contact herbicide that should be applied in spray volumes ranging from 15 to 20 gallons per acre and at spray pressure that ensures good coverage to small, actively growing weeds. Oil adjuvants (Crop Oil Concentrate and Methylated Seed Oil) greatly enhance oil soluble herbicides like Betamix but antagonize glyphosate. MSO based 'high surfactant oil concentrate' adjuvants (HSMOC) contain a higher concentration of surfactant COC and MSO and enhance oil soluble herbicides without decreasing glyphosate activity. Apply oil adjuvants on an area basis (i.e. pt/A) rather than a volume basis (1% v/v). I recommend either 1 pint or 1.5 pint per acre.

Sugarbeet injury occasionally occurs from Betamix. Sugarbeet with four true leaves are less susceptible to injury than smaller sugarbeet. Sugarbeet gain additional tolerance as they become larger than the four-leaf stage. Risk of sugarbeet injury is reduced by starting application in late afternoon so cooler temperatures follow application. Risk of injury is increased by factors such as recent flooding, high temperature, and a sudden change from a cool, cloudy environment to a hot, sunny environment.

Consider addition of Betamix to the tank-mix for control of glyphosate resistant weeds including kochia, waterhemp, and common ragweed. While I am unaware of glyphosate resistant lambsquarters, Betamix applied with glyphosate will improve efficacy, especially under dry conditions.

Rainfall may be limiting in 2015. We know that most weeds and especially lambsquarters are difficult to control with glyphosate when they are not actively growing. Less than ideal application conditions or when weeds are larger than what is recommended might be the right situation to use Betamix.

Please consider the following suggestions:

Weed	Weed Size	Betamix <sup>1</sup>	Glyphosate <sup>2</sup>	Surfactant
Kochia	2 – 3 inch	12 – 34 fl oz/A	22, <b>28</b> , 32 fl oz/A	HSMOC + AMS
Waterhemp	2 inch	12 – 34 fl oz/A	22, <b>28</b> , 32 fl oz/A	HSMOC + AMS
Common Ragweed	2 – 4 inch	12 – 34 fl oz/A	22, <b>28</b> , 32 fl oz/A	HSMOC + AMS
Lambsquarters	2 – 3 inch	12 – 34 fl oz/A	22, <b>28</b> , 32 fl oz/A	HSMOC + AMS

<sup>1</sup>Betamix at 8-12 fl oz/A on cotyledon, 12-16 fl oz/A on 2-lf, 16-24 fl oz/A on 4-lf and 24-34 fl oz/A on sugarbeet > 6-lf.

<sup>2</sup>Assumes two glyphosate sprays before V8 sugarbeet. Apply glyphosate at 32 fl oz/A if one application before V8 sugarbeet. Apply glyphosate at 22 fl oz/A after V8 sugarbeet stage. Make repeat application(s) at approximately 14 day intervals.

Addition of ethofumesate at 4 fl oz/A with Betamix plus glyphosate improves control, especially on tough-to-control weeds such as waterhemp and kochia. Use the lower range of the Betamix recommendations as sugarbeet injury may be greater.