CONQUERING COMFREY. Jerry D. Doll, Extension Weed Scientist, Department of Agronomy, University of Wisconsin, 1575 Linden Dr., Madison, WI 53706.

Comfrey is not in the vocabulary of most weed scientists because it is relatively uncommon on farms in the midwest. The plant was introduced into gardens for medicinal purposes from settlement times and more recently some have used comfrey as a forage. The most common situation that has led to comfrey infestations in fields is the incorporation of a former garden into a field. It is also a weed in those situations where comfrey was established for forage uses. Common observation is that "once established, there forever." Comfrey seldom produces seed but has multiple taproots that readily regrow whether intact or cut into small segments. Roots were dug in the field to a 12-inch depth and planted 1 inch deep in greenhouse pots. Root segments from the upper 6 inches of roots only 0.25 inch in length generated new plants and larger segments from roots dug from 12 inches deep also produced roots and shoots. Thus, the potential for vegetative propagation is very high. Tillage both multiplies the comfrey population and prolongs its emergence period. Even without soil disturbance, plants emerge well into the growing season complicating postemergence application timings.

Trials were done in producer fields with serious comfrey infestations in Sauk Co., Wisconsin in 2001-2003. Roundup Ready (RR) corn and soybean were planted by the producers and postemergence herbicides were evaluated for comfrey control. The 2001 site was moldboard plowed prior to planting RR corn. No tillage was done in the 2002 and 2003 trials where RR corn RR soybean were planted, respectively. Plots were 400 to 600 ft^2 in size and replicated three times. Herbicides were applied in 15 to 18 gal/a of water with a CO_2 backpack sprayer fitted with extended range flat fan nozzles. Additives were used as per labeled recommendations.

Persistent rains in 2001 prevented the farmer from planting the field until the end of May. At that time, comfrey was 12 to 30 inches tall and flowering. The field was moldboard plowed on May 26 to obtain a level playing field. RR corn was planted in 38-inch rows on May 28. Postemergence herbicides were applied on July 6. Comfrey was 2 to ll inches tall and had not flowered. On July 11, the second part of split treatments was applied. Unless otherwise noted, the glyphosate rate in all years was 0.75 lb ae/a and all other herbicides were applied at normal use rates.

In 2001, dicamba alone, dicamba premixed with diflufenzopyr, and dicamba tank mixed with glyphosate gave 80% or more control of treated comfrey plants 30 days after application. The premix of primisulfuron plus dicamba, halosulfuron alone, mesotrione plus dicamba and glyphosate alone (single and sequential treatments) gave 60 to 80% control of treated plants. Clopyralid and mesotrione alone had little effect on comfrey. Due to continued emergence of comfrey after herbicide application, comfrey levels in September were greater than when treatments were applied.

In 2002, RR corn was no-till planted on May 29 following a May 16 broadcast application of paraquat (a burndown herbicide) and acetochlor (a preemergence treatment to control annual broadleaf and grass weeds). Surprisingly, paraquat had only a temporary effect on comfrey and did not "burn down" the treated plants adequately. Postemergence treatments were made when comfrey had started flowering on June 17 and again on July 2. On Oct. 10, glyphosate (1.5% v/v solution of a 3-lb ae/gallon formulation) was applied preharvest between corn rows with a backpack sprayer fitted with a single TK 3 tip. Even in a no-till system, comfrey emerged well into the growing season but less so than in 2001 when tillage is done. This year dicamba, halosulfuron, primisulfuron plus dicamba, mesotrione and 2,4-D failed to give acceptable comfrey suppression. Glyphosate at 0.75 lb ae/a in single and sequential applications and dicamba plus difluenzopyr at the highest labeled rate for corn gave 90% or more comfrey control.

Nearly all the 2002 treatments that contained glyphosate had less than 10% comfrey abundance (0-100

scale) on August 20 but only those with two glyphosate applications had less than 15% comfrey abundance at the end of the season. Comfrey control with the preharvest glyphosate application was nearly 100% when evaluated in May 2003. Sequential application of glyphosate in RR corn in 2002 also resulted in less than 10% comfrey abundance the year after application and sequential use of dicamba plus diflufenzopyr had 15% abundance, the best of all non-glyphosate-based treatments.

In 2003, RR soybeans were no-till planted on May 30. Paraquat or glyphosate with metolachlor was applied as a burndown/preemergence treatment prior to planting. We observed that preplant glyphosate noticeably reduced comfrey vigor but paraquat did not. Glyphosate applied in-crop gave 81 to 97% comfrey control in late July with only a slight advantage to sequential applications and no greater control from rates above 0.75 lb ae/a. Glyphosate was applied alone as a preharvest treatment to mature soybean on Oct. 6 and after harvest alone and in combination with either tribenuron and rimsulfuron plus thifensulfuron (Basis), or with tribenuron and clorimuron + thifensulfuron (Synchrony) on Oct. 30. In May 2004, the preharvest treatments were nearly free of comfrey (0 to 2%) and even the postharvest applications were as effective as in-crop application of glyphosate in reducing comfrey abundance.

Comfrey can be conquered. The formula for success is to 1) plan to use a no-till system and glyphosate resistant crops for two seasons, 2) plant comfrey-infested fields last to delay the burndown application of glyphosate as long as possible, 3) apply a low rate of a soil-active herbicide with the burndown treatment, 4) plant 3 days after applying the burndown treatment, 5) apply 0.75 lb ae/a of glyphosate when comfrey is well into the flowering stage (probably mid to late June) and 6) consider preharvest glyphosate applications if necessary.

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