REPORT

Potential Herbicides for Okra Production
NCSU IR-4 Field Research Center
Raleigh, NC

This trial was conducted at the Horticultural Crops Research Station near Clinton, North Carolina in 2002. The entire trial site, except for the weed-free treatment, received Treflan (trifluralin) preplant incorporated (ppi) applied at 1.5 pt/acre. Preemergence (pre) treatments included Sandea (halosulfuron) at 0.75 oz/acre, Cotton-Pro (prometryn) at 1.5 pt/acre, Meturon (fluometuron) at 1 qt/acre, and Staple (pyrithiobac) at 1.0 oz/acre. Staple was also applied postemergence (post) at 1 oz/acre over 6-7" okra. Three post-directed (p-dir) treatments were also included. These included Sandea at 0.75 oz/acre, Cotton-Pro at 1.5 pt/acre, and Valor (flumioxazin) at 1.5 oz/acre. P-dir applications occurred to 12-14" okra. PPI and PRE treatments occurred on May 3. Postemergence application of Staple was made June 15. The P-dir treatments were put on July 1.

RESULTS:
Preplant Incorporated Treflan alone

No visible injury was seen at any point during the season the season, therefore any injury percentages in plots other than weed-free are attributable to the non-Treflan herbicide

Preemergence Treatments

At 17 days after planting (May 20), chlorosis was seen in the Sandea (2%) and Staple (5%) plots. A week later (May 28) this manifested in 12 and 13% stunting, respectively. The Cotton-Pro and Meturon also had slight chlorosis at this point. More striking at the evaluation was the leaf necrosis from Meturon (18%). Stand reduction was evaluated in mid-June. Meturon had killed 62% of the initial planting at this point. By late June, stunting from Cotton-Pro was less than 10% while stunting from the other three preemergence treatments was, 48 (Sandea), 62 (remaining Meturon plants) and 78 (Staple) percent. At onset of harvest, these stunting number remained consistent. The only preemergence treatment that resulted in fruit number/acre yields that were not significantly less than Treflan alone or the weed-free treatment was Cotton-Pro. All other preemergence treatments reduced yields. Compared to weed-free, these reductions were 56 (Sandea), 59 (Meturon), and 69 (Staple) percent. Similar reductions from these treatments were seen with lb/acre yields.

Postemergence Staple treatment
This treatment was broadcast applied over 6-7" okra. At 2 weeks after application, this treatment caused <10% stunting. The harvests began at this point. At one month after application, stunting had increased to 23%. Compared to the weed-free treatment, fruit/acre yield was reduced by 29% and lb/acre was reduced 28%, though neither value was significantly different.

Post-directed treatments

These were applied the day before first harvest. Some injury was seen as soon as four days after application. At this time Valor had created necrotic areas on lower leaves and necrotic spots on some lower fruit. Necrosis was rated at 10%. Cotton-Pro had also created some necrosis on leaf margins (2%). Sandea injury manifested itself as chlorosis (8%). All of these injuries lessened over time and fruit/acre and lb/acre yields from these treatments were not different from the weed-free. In fact, the Valor treatment had the highest values for both. There is some concern about lesions being present on the okra fruit. Some of these lesions reached 10% of fruit area.

CONCLUSIONS:

There is potential for additional herbicide options in okra. This trial showed that Cotton-Pro preemergence and post-directed is safe to okra without substantial yield reduction. Sandea post-directed also looks promising since chlorosis is both minor and short-lived. High yields from Valor post-directed seem encouraging, but the necrotic lesions on some fruit may hinder its potential. Additionally, okra stems are generally not particularly woody and valor lesions may cause a loss of stem integrity if lesions are severe.
Tolerance of Okra (*Abelmoschus Esculentus*) to Several Cotton Herbicides. R.B. Batts and A.S. Culpepper, North Carolina State University, Raleigh, NC and University of Georgia, Tifton, GA.

Field trials were conducted at Clinton, NC and TyTy, GA in 2002 and 2003 to identify potential new herbicides for okra, many of them registered for use in cotton. Trial sites received trifluralin preplant incorporated (0.84 kg ai/ha). Treatments included preemergence (PRE) applications of halosulfuron (0.39 kg ai/ha, prometryn (0.84 kg ai/ha), fluometuron (1.12 kg ai/ha), and pyrithiobac (0.048 kg ai/ha). Pyrithiobac (0.072 kg/ha) applied postemergence over-the-top (POST) to six inch okra was included as were postemergence directed (P-DIR) applications of halosulfuron, prometryn, and flumioxazin at 0.039, 0.84, and 0.054 kg/ha, respectively. P-DIR treatments were applied to okra stalk when it reached 12-inches in height.

Two weeks after PRE treatments, okra injury from fluometuron PRE ranged from 12 to 73%. Pyrithiobac PRE stunted okra 7% or less at three locations, but stunting was 47% in Georgia in 2002. Stunting from halosulfuron PRE was 2% or less in North Carolina, but was 13 to 22% in Georgia. Prometryn PRE injured okra 7% or less at all sites. Injury from pyrithiobac POT was 3 to 27% two weeks after treatment. At three weeks after P-DIR, flumioxazin P-DIR caused less than 2% injury in North Carolina and 15% injury at Georgia in 2003. However, due to large stem lesions and subsequent wind storm, 67% of the crop in this treatment was lost at Georgia in 2002. Halosulfuron P-DIR injury on okra was 2 to 15% while injury from prometryn P-DIR was less than 8%. Prometryn injury was temporary necrosis of lower leaf margins.

Similar to injury, yield data varied by location. Okra treated with prometryn PRE or P-DIR or halosulfuron P-DIR yielded consistently similar with the weed free control. Because of low injury risk and consistently high yields, potential exists for prometryn PRE or P-DIR and halosulfuron P-DIR to be labeled for use in okra.