

Weed Re-growth with Fiesta™ Herbicide
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Objective

To determine how much weed re-growth occurred following either one or two applications of the broadleaf post emergence herbicide Fiesta™.

Experimental Design 2010

A tagged weed trial of individual weeds of (30 of each species) of clover, narrow-leaved plantain, broad-leaved plantain and dandelion was initiated. For narrow and broad-leaved plantain and dandelion all but one weed per 20cm x 20 cm frame were removed (Figure 1) and applied one application of Fiesta™ to 10 individual weeds, two applications of Fiesta™ to 10 individual weeds and 10 individual weeds were left untreated. For clover, patches of clover were chosen and a frame was put over a patch because it was difficult to determine what constituted an individual clover plant (Figure 2). Fiesta™ was diluted according to the label (1 part Fiesta™ to 24 parts water) and spot treated with a back pack sprayer until the weeds were thoroughly wet. The two applications of Fiesta™ as a spot treatment on individual weeds is the common method of application adopted by the lawn care sector. Table 1 summarized the treatments, treatment dates and rating dates for the 2010 study. The percent weed cover within the weed frame was estimated visually and recorded at each rating date.

Table 1. Treatment and Rating Dates for 2010 Fiesta™ Re-growth Trial

Number of Fiesta Applications	Treatment Date	Rating Dates	Data Collected	Weed species
1	June 7, 2010	June 14, 21, 28 and July 5 th , 2010	% live weed	Broad-leaved plantain, narrow leaved plantain, dandelion, clover
2	2nd application June 28, 2010	July 12, July 19, July 26th and Aug. 2 nd , 2010	% live weed	Broad-leaved plantain, narrow leaved plantain, dandelion, clover
0	Untreated control	June 14, 21, 28 and July 5 th , 12, 19, 26 and Aug. 2 nd , 2010	% live weed	Broad-leaved plantain, narrow leaved plantain, dandelion, clover

The Experimental Design 2011

In 2011, we initiated a tagged weed trial of individual weeds of common chickweed and patches of prostrate knotweed (30 of each species) and performed a similar trial to the one conducted in 2010 to determine their susceptibility to Fiesta™ where 10 weed frames

received one application of Fiesta™, 10 weed frames received two applications of Fiesta™ and 10 were left untreated. Fiesta™ was diluted according to the label (1 part Fiesta™ to 24 parts water) and applied with a back pack sprayer until the weeds were thoroughly wet. Table 2 outlines the treatments, treatment dates and rating dates for the 2011 trial. The % weed cover within the weed frame was estimated visually and recorded at each rating date. Only the data from July 11, 2011 will be reported because it represents the data collected after the two applications of Fiesta™ were made.

Table 2. Treatments, treatment dates and rating dates for 2011 Fiesta™ trial

Number of Fiesta Applications	Treatment Date	Rating Date	Data Collected	Weed Species
1	May 30, 2011	June 13 and July 11, 2011	% live weed	Prostrate knotweed, common chickweed
2	2nd application June 27, 2011	June 13 and July 11, 2011	% live weed	Prostrate knotweed, common chickweed
0	Untreated control	June 13 and July 11, 2011	% live weed	Prostrate knotweed, common chickweed

Results 2010

The data in Figure 3 shows that one month after the first application of Fiesta™ the dandelions had significant re-growth and were back to the same percent weed cover within the squares as the untreated control. One week after the second treatment of Fiesta™, the dandelions were almost completely dead. By the last rating date of Aug. 4, 2010 the percent dandelion cover was up to 10% within the weed frames. This indicates that two applications of Fiesta™ are needed for dandelions and even with the two applications within four weeks of each other there was re-growth up to 10% of the weed frame. This represents an 80% reduction of percent dandelion over the untreated control.

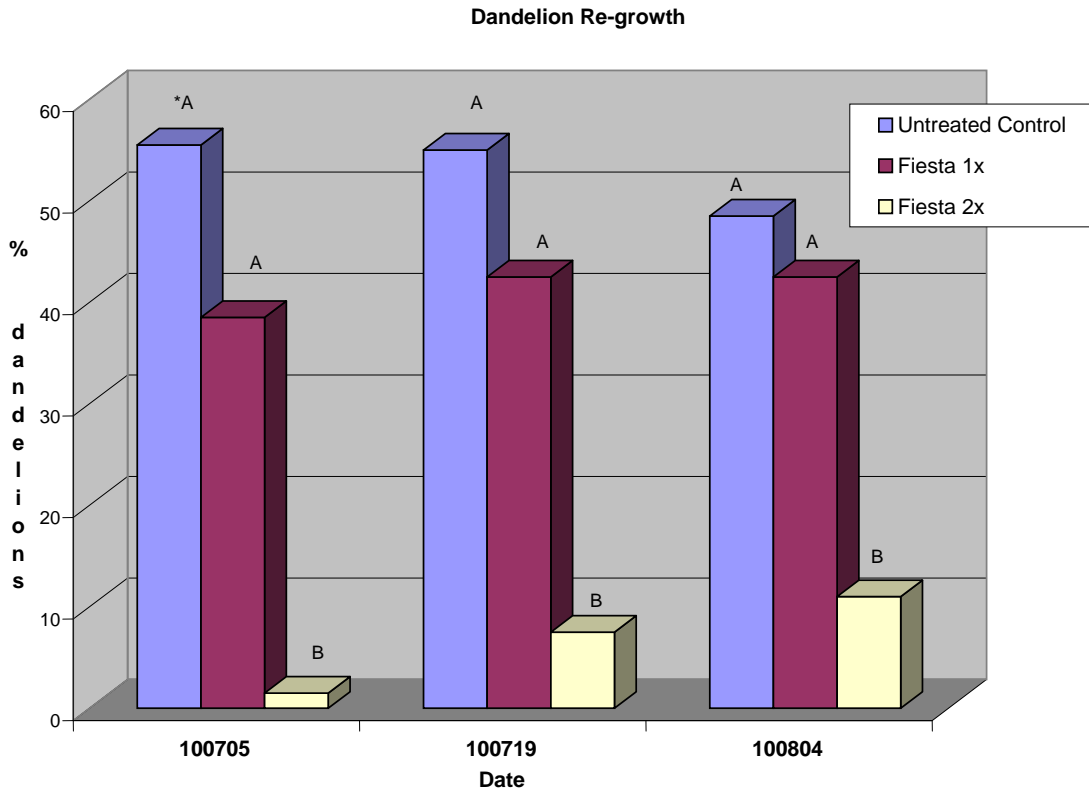


Figure 3. Re-growth of dandelions with one or two applications of Fiesta™ compared to the untreated control. *Bars within each rating date that have the same letter are not significantly different from one another.

The results in Figure 4 show that one application of Fiesta™ on broad-leaved plantain had very similar results to one application on dandelions. The second application of Fiesta™ on broad-leaved plantain was not as effective as the second application on dandelions. There was still roughly 7% broad-leaf plantain cover in the individual frames of tagged plants. By the last rating date (Aug. 4, 2010) the broad-leaved plantain was up to 13% cover within the individual frames which represents an 80% reduction of weed cover compared to the untreated control. In general, Fiesta™ is less effective in controlling broad-leaf plantain than dandelions.

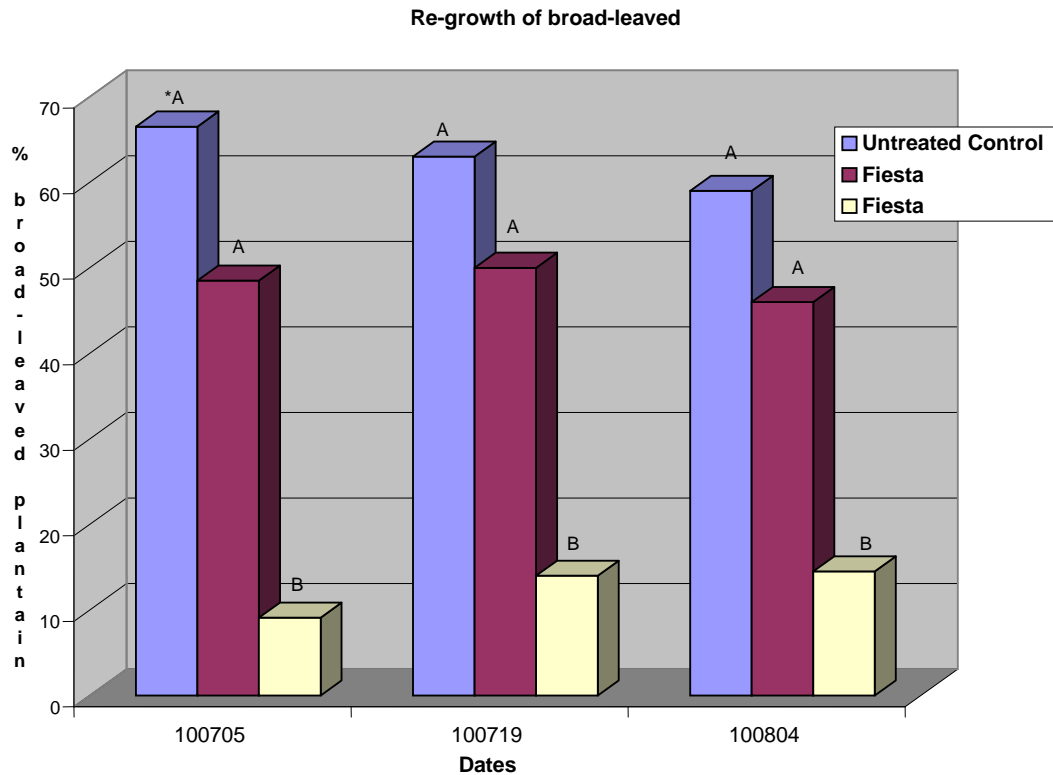


Figure 4. Re-growth of broad-leaved plantain with one or two applications of Fiesta™ compared to the untreated control. *Bars within each rating date that have the same letter are not significantly different from one another.

The results shown in Figure 5 show that one application of Fiesta™ significantly reduced the percent narrow-leaved plantain well over 50% and that there was not significant re-growth over the three rating dates (July 5, July 19 and Aug. 4th, 2010). In addition, two applications of Fiesta™ reduced the percent narrow-leaved plantain to a point where the weed was almost undetectable in the individual squares.

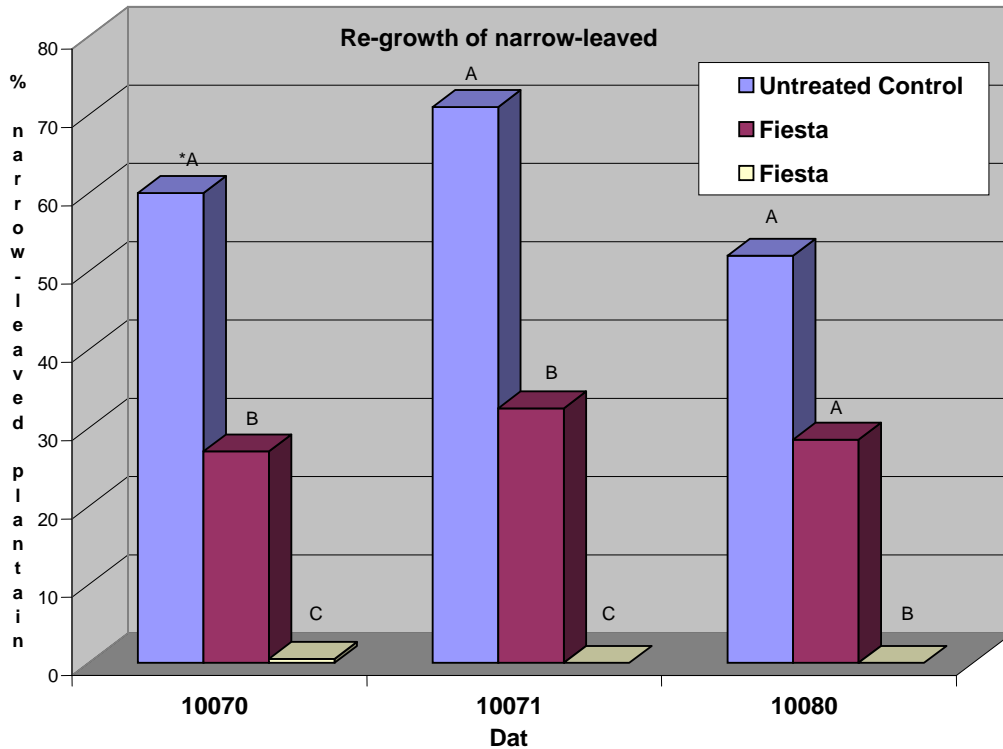


Figure 5. Re-growth of narrow-leaved plantain one or two applications of Fiesta™ compared to the untreated control. *Bars within each rating date that have the same letter are not significantly different from one another.

Again, the results of the individual clover squares were similar to the broad-leaved plantain. One application of Fiesta™ on clover had almost no effect at all on the % clover within the frames. One week after the second application of Fiesta™, the percent clover was significantly reduced, but at the time of the final rating date (Aug. 4, 2010) the clover had re-grown to a point just under 30% cover which is a 68% reduction of weed cover from the untreated control.

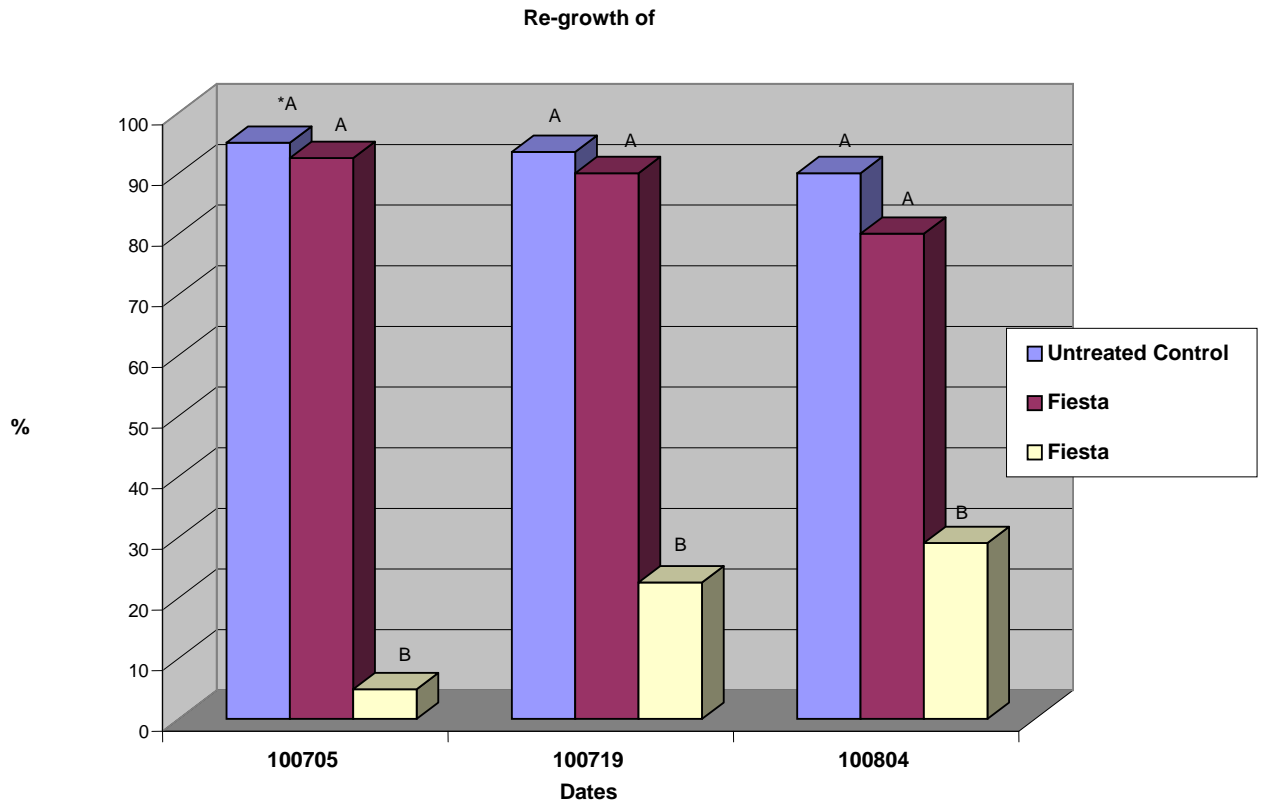


Figure 6. Re-growth of clover with one or two applications of Fiesta™ compared to the untreated control. *Bars within each rating date that have the same letter are not significantly different from one another.

Results 2011

The results obtained on common chickweed show that one application of Fiesta™ rated 6 weeks after the first application (1st Fiesta™ application was made on May 30th) reduced the weed cover by roughly 50% and two applications rated two weeks after the second application (2nd Fiesta™ application was made on June 27th) reduced the percent cover to 5% which is an 88% reduction of weed cover. The results for prostrate knotweed were very similar. Fiesta™ herbicide applied once reduced the % weed cover in the weed frame from 86% weed cover to 54% weed cover which is a 36% reduction. The second application of Fiesta™ reduced the % weed cover in the weed frame to 18%. Figure 8 shows a comparison of a weed frame that received two Fiesta™ applications next to an untreated control.

Control of prostrate knotweed and common

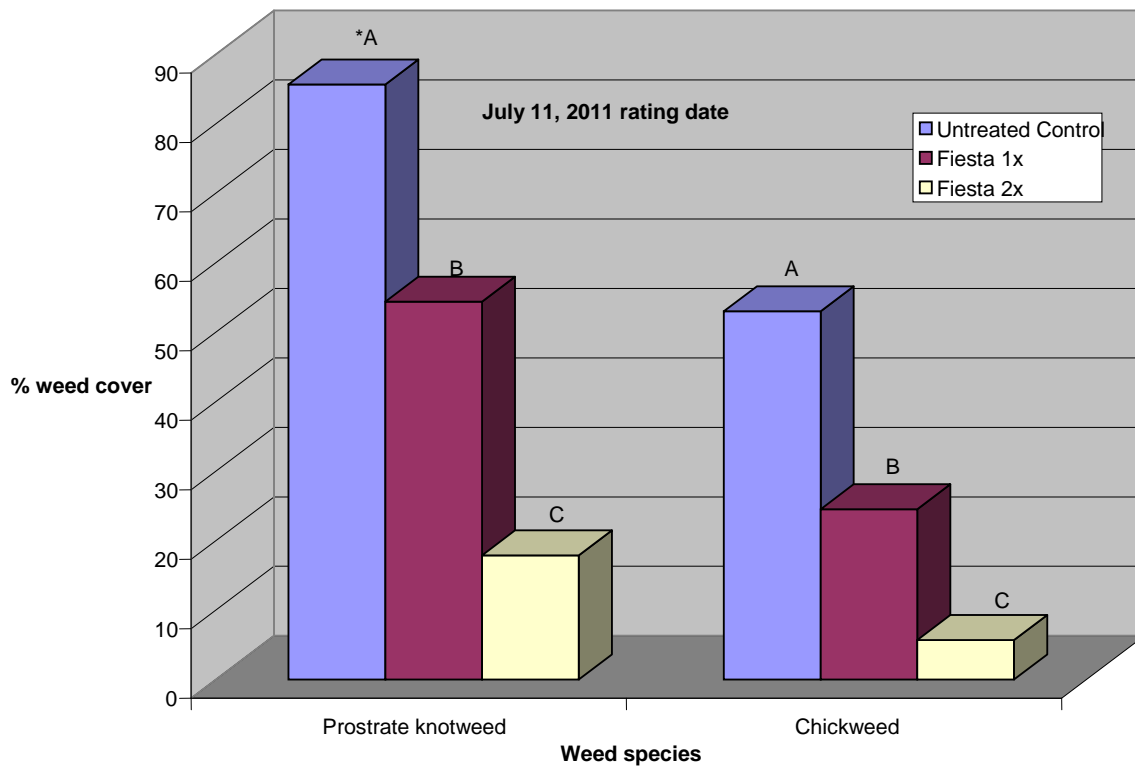


Figure 7. Control of prostrate knotweed and common chickweed with one, two applications of Fiesta™ compared to the untreated control. *Bars within each rating date that have the same letter are not significantly different from one another.

Conclusions

The data from 2010 showed on individual tagged weeds of dandelion, broad-leaved plantain and clover that there was significant re-growth of these weed species with a single application of Fiesta™. Narrow-leaved plantain is more susceptible to Fiesta™ and a single application gives control that is significantly better than the untreated control and two applications of Fiesta™ gave almost 100% control of this weed species. The patches of clover that were treated with Fiesta™ once did not show a significant reduction in the percent clover within the weed frames. After the second Fiesta™ application there was significant reduction in percent dandelion cover, percent broad-leaf plantain cover which represented an 80% reduction over the untreated control but this did represent re-growth from the ratings that were taken within a week of the second Fiesta™ application. After the second Fiesta™ application there was an immediate reduction in the percent clover, but by the Aug. 4th the percent clover cover was up to 27%, showing that there was also re-growth of the clover.

In 2011, it was demonstrated that two applications of Fiesta™ were necessary to control both prostrate knotweed and common chickweed, but that the control was much better on the common chickweed. As with all of the weeds tested in 2010 and 2011, with the exception of narrow-leaved plantain, two applications of Fiesta™ were necessary to control dandelion, broad-leaved plantain, clover, prostrate knotweed and common chickweed. Even with the two Fiesta™ applications these weed species are not completely eliminated from within the weed frames. This demonstrates that control of these weeds may take more two applications per season or more than one season.



Figure 1. A weed frame with a single dandelion plant prior to any Fiesta™ treatments



Figure 2. A patch of clover within the weed frame prior to any Fiesta™ treatments



Figure 8. The weed frame on the left is a patch of prostrate knotweed that received two Fiesta™ applications and the one on the right is the untreated control.