

**Title of Project:** Control of Cutworms in Grass Seed Fields  
**Report Title:** Annual Report March 2002  
**Report Covering Period:** April 1, 2001 – March 31, 2002  
**Organization(s):** Peace Region Forage Seed Association  
**Contact Person:** Ed Hadland, Treasurer or Jennifer Otani, Researcher, AAFC  
**Address:** Box 89 Baldonnel, BC V0C 1C0  
**Telephone:** 250-789-3646      **Fax:** 250-789-3646      **Email:** ehadland@awink.com

**Objectives:**

- To evaluate the efficacy of insecticides for the control of cutworms infesting grass seed fields.

**Accomplishments:**

- Completed first year of a two year field study.
- Sampled 15 fields in April 2001 to find sites with cutworm numbers appropriate for this study.
- Set up, staked and sampled study sites in tall fescue near Baldonnel (Arthur Hadland) in tall fescue near Grande Prairie (Reuben Lowen) and in creeping red fescue near Debolt (Jerry Gunby).
- Applied insecticide treatments and performed post spray sampling.
- Completed threshing and cleaning of harvest samples.
- Larvae development completed in lab.
- Completed first year data analysis.

**Tasks in progress:**

- Organizing resources and people to continue work on this project in 2002 season.

**Extension and demonstration:**

- Participated in both days of forage seed tours in July and discussed control of cutworm project and options with producers.
- Presented first year results of this project at both days of Forage Seed Annual Production Seminars in FSJ on March 12 and in Fairview on March 13, 2002.

**Finances:**

Total Project Budget:		<i>\$8,000.00</i>
Revenue from PRAD (1 <sup>st</sup> cheque):	\$ 5,400.00	
Revenue from PRFSA/Industry	<u>\$ 2,000.00</u>	
Total Income to Mar. 31, 2002	\$ 7,400.00	
Expenditures to Mar. 31, 2002		\$8,012.00
Excess / (Deficit)		(\$ 612.00)

**Variances from original work plan schedule or budget:**

**Summary comments, conclusions:**

The PRFSA appreciates continued support of this project by PRAD board and of the producers writing individual cheques to the Producer Research Fund. After reporting at the annual seminars on how the Producer Research Funds had been used for the 2 projects (Fescue Rejuvenation and Control of Cutworms), contributions to the fund increased to 3 times what they were in 2001. This is one of several indicators of growing industry support for these 2 projects. The other indicator was interest and support from insecticide companies for the Control of Cutworms project.

**Attachments:**

- Detailed Annual Report from Jennifer Otani and Calvin Yoder
- Detailed Summary of Finances (attached to paper copy)

**Cutworm Study:** Control of cutworms in grass seed fields.  
Otani - AAFC Beaverlodge, Yoder – AAFRD Spirit River

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*Funding:*

Industry: Peace River Region Forage Seed Producers

*Objectives:* To evaluate the efficacy of insecticides for the control of cutworms infesting grass seed fields.

*Overview - 2001:*

Completed first year of two-year field study.

Study sites located near Baldonnel BC (Arthur Hadland) in tall fescue, Grande Prairie AB (Reuben Lowen) in tall fescue, and Debolt AB (Jerry Gunby) in creeping red fescue.

Both tall fescue sites suffered from winterkill; no post-insecticide sampling or harvest data was possible to perform at the Baldonnel site and no harvest data possible at the Grande Prairie site.

Treatments compared in 2001 in Grande Prairie included:

1. Untreated control,
2. Decis (deltamethrin at 80 ml/ac),
3. Lorsban (chlorpyrifos at 485 ml/ac),
4. Matador (cyhalothrin-lambda at 34ml/ac).

Treatments compared in 2001 in Debolt included:

1. Bison fall-grazed, untreated control,
2. Bison fall-grazed, Decis (deltamethrin at 80 ml/ac),
3. Bison fall-grazed, Lorsban (chlorpyrifos at 485 ml/ac),
4. Bison fall-grazed, Matador (cyhalothrin-lambda at 34ml/ac),
5. No grazing, untreated control,
6. No grazing, Decis (deltamethrin at 80 ml/ac),
7. No grazing, Lorsban (chlorpyrifos at 485 ml/ac),
8. No grazing, Matador (cyhalothrin-lambda at 34ml/ac),

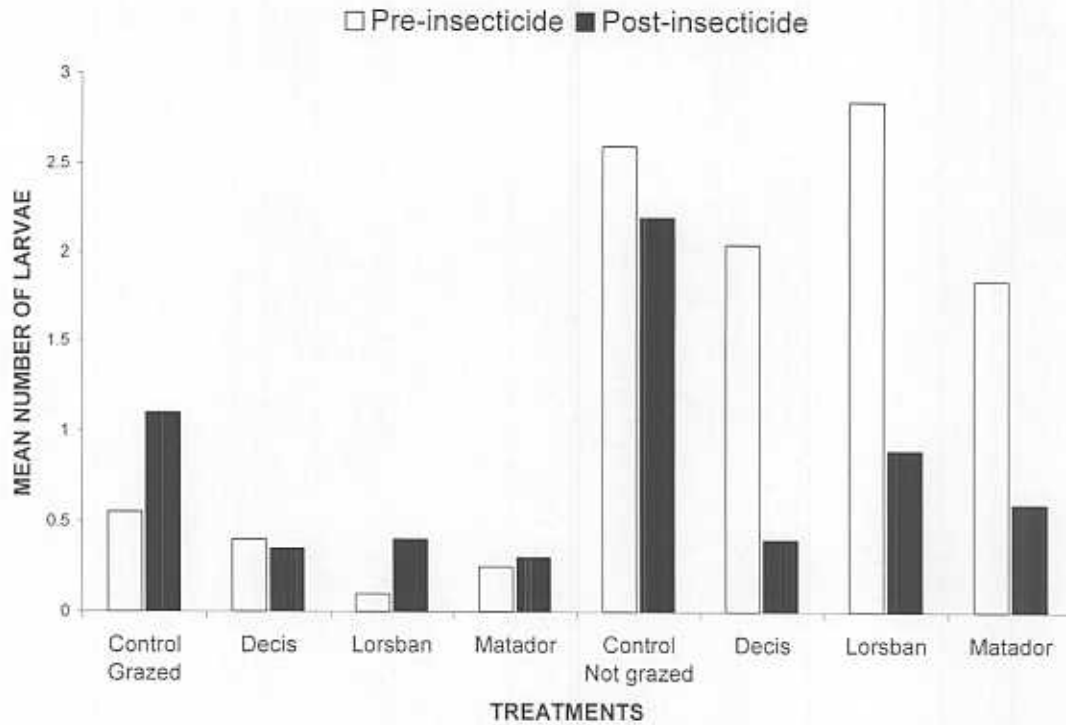
Glassy cutworms (*Apamea devastator*) were not present in grass seed stands in the Peace River region. However, sod webworms (suspected to be *Pediasia aridella* (Thunberg)) were present in test plots so treatments were applied and the study was completed in 2001.

*Preliminary Results:*

Low numbers of sod webworms were observed in grass tufts collected from both Grande Prairie (<2 per grass tuft, N=10 tufts per plot, 3 replicates) (Figure 1) and Debolt (<3 per grass tuft, N=10 tufts per plot, 4 replicates) (Figure 2 A). In addition, spatial distribution of the larvae was not random resulting in more larvae in some post-insecticide dissections of grass tufts compared to numbers observed in pre-insecticide dissections of grass tufts.

When yield and biomass data was compared, there was no significant difference between the treatments compared in Debolt (Figure 2 B). In fact, fall grazing by

A



B

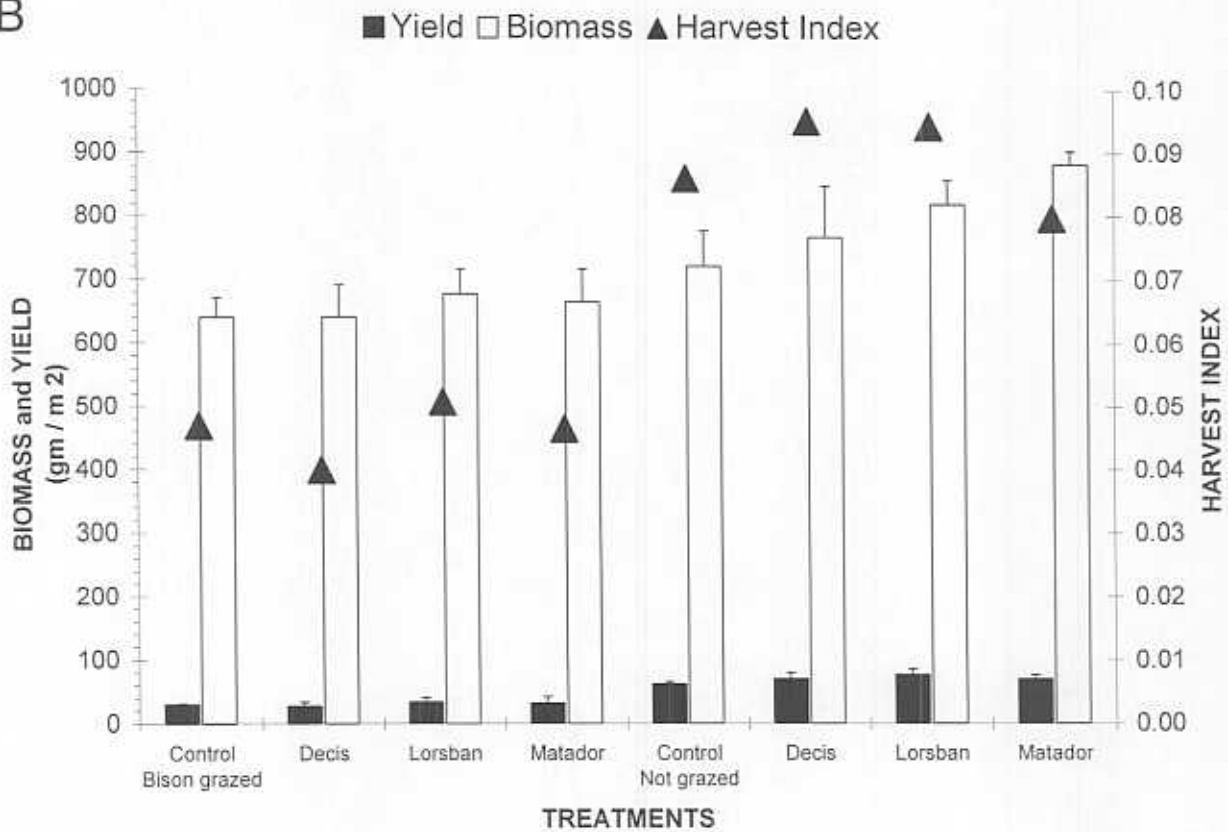


Figure 2. Mean number of sod webworm larvae occurring in grass tufts collected from creeping red fescue grown for seed near Debolt AB in 2001.

bison significantly decreased creeping red fescue yield whereas there was no significant difference between treatments compared in either the grazed or not grazed plots. Similarly, significantly lower biomass was observed for plots where bison had been allowed to graze compared to plots where no grazing was permitted.

Correlations examining the number of sod webworms and the diameter of the grass tufts sampled, the number of tillers per tuft, and the proportion of dead tillers per tuft following post-insecticide showed no significant relationships. There was no relationship between the number of larvae and the size of a grass tuft, the number of larvae and the number of tillers per tuft, or the number of larvae and the proportion of dead tillers per tuft following insecticide applications for both the tall fescue (Grande Prairie site) and creeping red fescue (Debolt site).

*Summary:*

Approximately 15 fields were sampled in April 2001 in order to find sites with cutworm numbers appropriate to perform this study. Of the three fields selected, two were tall fescue fields that later failed to recover from winterkill. Unfortunately, it was not possible to collect harvest data from the tall fescue sites that would have reflected the impact of the cutworms or sod webworms.

Based on the insect sampling and harvest data collected in Debolt for creeping red fescue, the small numbers of sod webworms present had no significant effect on yield or biomass between the treatments compared in 2001. The significance of this first-year data is that sod webworm numbers around 3 larvae per 15 cm creeping red fescue tuft (third year growth) will not significantly decrease either yield or biomass if grown under environmental conditions similar to 2001.

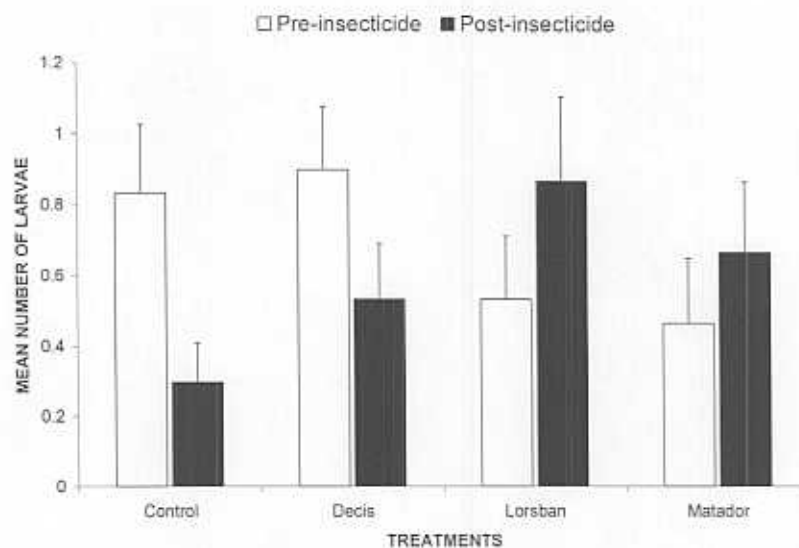


Figure 1. Number of sod webworm larvae occurring in grass tufts collected from tall fescue grown for seed near Grande Prairie AB in 2001.

*Appendix A: Detailed activities - 2001:*

- 18 April: Sampled in various fields surrounding Beaverlodge and Hythe.
- 27 April: Sampled in various fields surrounding Grande Prairie.
- 10 May: Set up, staked and sampled in experimental plots at Rueben Lowen's tall fescue near Grande Prairie and at Jerry Gunby's creeping red fescue near Debolt (pre-spray sampling).
- 11 May: Set up and staked experimental plots at Arthur Hadland's tall fescue near Baldonnel.
- 14 May: Sampled in Arthur Hadland's tall fescue (pre-spray sampling).
- 11 –18 May: Dissected grass tufts and surrounding soil for the three experimental sites.
- 22 May: Applied insecticide treatments on Lowen's tall fescue and Gunby's creeping red fescue.
- 23 May: Applied insecticide treatments on Hadland's tall fescue.
- 7 June: Performed post-spray sampling for insects at Lowen's and Gunby's.
- 20 June: Rueben phoned to alert us that remainder of field will be plowed up except plots.
- 31 July: Eliminated Arthur Hadland's from trial – very poor stand of Tall fescue and no insects found feeding on tufts collected at pre-spray sampling.
- 1 August: Collected two 1m x 1m quadrats of plant material for harvest data from Jerry Gunby's; plant samples dried in dryer in preparation for harvesting.
- 2 August: Finished dissecting post-spray grass tufts.
- 14 November: Completed threshing and cleaning of harvest samples; larvae completed development in lab.
- 4 March: First-year data analysis completed.
- **Future:** Second year to be completed in 2002.