

California Lettuce Research Board's 2005 Strategy

The following information is provided in response to the Pesticide Environmental Stewardship Program (PESP) request for an up-dated strategy for the California Lettuce Research Board (CLRB). Please be advised that the CLRB web site at www.calettuceresearchboard.org contains considerable information on CLRB activities including Crop Profiles for both iceberg and leaf lettuce, a Pest Management Strategic Plan for California and Arizona Lettuce, and abstracts of research projects funded over the last five (5) years. The following comments are with regard to the CLRB 2005-2006 PESP strategy.

Progress on Previously Reported Projects

Activity 1 - Plant Breeding Project

Research supported by the CLRB continues to provide the basis for development of either new germplasm and/or cultivars with resistance to a number of important lettuce pest problems including: anthracnose; bacterial leaf spot; big vein virus; corky root; downy mildew; leafminers; lettuce drop; lettuce mosaic virus; powdery mildew; the lettuce aphid; lettuce dieback disease (tomato bushy stunt virus); Phoma basal rot; Fusarium wilt; and Verticillium wilt.

2005 - 2006

This project forms the basis for Integrated Pest Management Programs (IPM) in lettuce. The major emphasis of CLRB breeding research is continuing with modifications as necessary aimed at the development of germplasm with resistance to the most important diseases and insects of lettuce in California. Emphasis continues to be placed on the development of germplasm with resistance to Verticillium wilt, Fusarium wilt, lettuce dieback disease, and Phoma basal rot, all of which have recently become more serious threats to lettuce. In addition, programs for the development of germplasm with resistance to insects (e.g., leafminers and the lettuce aphid) are also being explored along with the potential to improve the nutritional levels in lettuce. In addition a meeting was held in 2004 with CLRB members, seed company researchers and University of California (UC) and United States Department of Agriculture (USDA) breeders to ensure that the general priorities of these programs meet the needs of the lettuce industry. Information on the development of germplasm and related breeding information has, and will continue to be distributed to the user community through workshops and field days by the principal investigator(s) and at CLRB meetings and in the CLRB annual report. Operating Under the Authority of the California Secretary of Food and Agriculture

Activity 2 - Cover Crop Project

This project was initiated in the 2002-2003 fiscal year based on data obtained from previously funded CLRB research which indicated that broccoli residues will reduce soil populations of lettuce drop, a serious soil borne disease of iceberg and leaf lettuce. Additional information taken from the literature has indicated that certain mustard related cover crops have the ability to reduce soil populations of weeds and diseases.

2005– 2006

Preliminary results indicate that mustard cover crops do not provide economic reductions in lettuce drop and/or significant reductions in weed populations. This project is continuing, and data is expected to be collected on the influence of three consecutive years of cover crop rotations on reductions of soil populations of lettuce drop and as potential alternative crops for reducing weed populations. Short and long term crop rotation studies have been established involving both iceberg and leaf lettuce. In addition, preliminary data is also expected to be collected to determine the impacts of these cover crops on other soil organisms (e.g.. club root), soil nitrogen levels, and the potential to increase soil organic matter. Information on the effectiveness of the treatments under test has, and will continue to be distributed to the user community through workshops and field days by the principal investigator and at CLRB meetings and in the CLRB annual report.

Activity 3 - Soil Arthropod Management Project

This project was initiated in the 2003-2004 fiscal year based on the need for data on the impact of the potential loss of diazinon, on soil pests which affect the emergence of lettuce in the northern coastal production regions of California. Although this is a relatively minor use, individual lettuce fields can sustain significant economic losses, and on occasion require replanting due to damage to lettuce seeds and/or seedlings from soil borne pests.

2005 - 2006

Initial emphasis of this research was in the development of techniques to measure the impact of treatments on soil populations of various pests including symphylans and springtails. Preliminary efficacy data has been obtained comparing the standard conventional treatment of diazinon with synthetic pyrethroids, while the long term strategy is to explore all economic management options. Additional information is expected to be developed to compare the most effective treatments under varied application techniques.

Information on the effectiveness of the treatments under test has, and will continue to be distributed to the user community through workshops and field days by the principal investigator and at CLRB meetings and in the CLRB annual report.

Activity 4 - Thrips Management Project

This project was initiated in the 2004-2005 fiscal year based on the need for additional data on the impact of thrips populations on both domestic and export lettuce quality at harvest. Data will be obtained from both the northern coastal and southern desert regions, which represent two very diverse lettuce production areas in California. Comparisons will be made between standard thrips management pesticides (e.g., methomyl) and the conventional (i.e. Success) and organic formulations (i.e. Entrust) of the reduced risk product spinosad.

2005 - 2006

Emphasis on the 2004-05 research was on the development of more efficient sampling techniques to measure product efficacy. Limited data indicates that the conventional and organic formulations of spinosad are equally effective but slightly less effective than the standard methomyl treatment. Additional information on product efficacy is expected to be developed in 2005-06.

Information on the effectiveness of the treatments under test has, and will continue to be distributed to the user community through workshops and field days by the principal investigator and at CLRB meetings and in the CLRB annual report. Following the release of efficacy data, a survey of key researchers and lettuce producers will be conducted to determine the economic impact of alternative treatments. In addition, if new unregistered products are deemed effective, then the CLRB will support research aimed at the registration of these products, hopefully of which one, or more, will be classified as reduced risk pesticides by the Environmental Protection Agency.