IR-4 Provides Economic Viability

The specialty food crop value in Massachusetts is $345 million¹

- Specialty crops include most vegetables, fruits, nuts, herbs, nursery and flower crops.

The economic loss of these crops could be as much as $71.6 million². IR-4’s research helped to register Section 18 Emergency Exemptions for Massachusetts that helped prevent this loss from occurring. A registration is granted by the Environmental Protection Agency (EPA) for a particular pest control product on a specific crop. Many of these registrations have been turned to permanent registrations. In 2003, ninety-five of the 120 Section 18 Emergency Exemptions that were converted to final registrations were credited to IR-4 by the EPA.

IR-4 Provides Research in Support of a Safe and Secure Food Supply

The Reduced Risk chemicals that IR-4 researches receive clearances from the Environmental Protection Agency (EPA), and are able to control pests that destroy crops without harming the individuals that use them, the food that is harvested, or the environment in which the crops are grown.

IR-4 Helps US Farmers Compete in a Global Economy

With farm production costs rising every day, IR-4 research helps growers stay ahead of global competition, by producing safe and effective pest management solutions for their high value specialty crops.

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¹ Major funding for IR-4 is provided by Special Research Grants and Hatch Act Funds from USDA-CSREES, in cooperation with the State Agricultural Experiment Stations, and USDA-ARS.

² To learn more about IR-4 programs, visit the IR-4 web site at www.ir-4.rutgers.edu
What IR-4 Does for Massachusetts

Clearances On Some Important Massachusetts Crops

APPLE
- 2,4-D
- Aluminum Phosphide
- Codling Moth
  - Granulosis Virus
- Phospholipid (EUP)

BEAN (SNAP)
- Clomazone
- Halosulfuron
- Lactofen
- Myclobutanil

BEET (GARDEN)
- Bacillus thuringiensis
- Clopyralid
- Endothall
- Sethoxydim

BLACKBERRY
- Bifenthrin
- Captan
- Chlorpyrifos
- Esfenvalerate
- Glyphosate
- Malathion
- Myclobutanil
- Norflurazon
- Oxyfluorfen
- Sethoxydim

BLUEBERRY
- 2,4-D
- Captan
- Chlorothalonil
- Chlorpyrifos
- Esfenvalerate
- Ethephon

CANTALOUPE
- Fenbuconazole (Sec. 18)
- Fenhexamid
- Fludioxonil
- Bosetyl-Al
- Glyphosate
- Hexazinone
- Methyl Anthranilate
- Norflurazon
- Pyriproxyfen
- Tebufenozide
- Terbacil
- Ziram

BROCCOLI
- Bacillus thuringiensis
- Chlorpyrifos
- Clopyralid
- Glyphosate
- Malathion
- Oxyfluorfen
- Paraquat
- Sodium Hypochlorite
- Spinosad

CABBAGE
- Bacillus thuringiensis
- Chlorpyrifos
- Clopyralid
- Clomazone
- DCPA
- Endothall
- Glyphosate
- Malathion
- Methamidophos
- Methomyl
- Oxyfluorfen
- Paraquat
- S-Metolachlor
- Sodium Hypochlorite

CHINESE CABBAGE
- Bacillus thuringiensis
- Chlorothalonil
- Chlorpyrifos
- Clomazone
- Cyromazine
- DCPA
- Glyphosate
- Malathion
- Methamidophos
- Methomyl
- Oxyfluorfen
- Paraquat
- S-Metolachlor
- Sodium Hypochlorite

CHINESE MUSTARD
- Bacillus thuringiensis
- Cyromazine
- DCPA
- Ipodione
- Malathion
- Methomyl
- Sodium Hypochlorite

CHINESE RADISH
- Bacillus thuringiensis

CRANBERRY
- 2,4-D
- Acephate
- Azoxystrobin
- Chlorothalonil
- Chlorpyrifos
- Clopyralid (Sec. 18)
- Cryolite
- Ferbam
- Fosetyl-Al
- Glyphosate
- Maleic Hydrazide
- Metalaxyl
- Phospholipid (EUP)
- Prionamid (Sec. 18)
- Pyridaben
- Sethoxydim
- Spinosad (Sec. 18)
- Tebufenozide

GRAPE
- Aluminum Phosphide
- Bifenthrin
- Chlorpyrifos
- Fosetyl-Al
- Glyphosate
- Methamidophos
- Maleic Hydrazide
- Sethoxydim
- Spinosad
- Zinc Phosphide

HONEY and BEESWAX
- Bacillus thuringiensis
- Benzaldehyde
- Formic Acid
- Menthol

ONION (GREEN)
- Bromoxynil
- Cypermethrin

ONION (GREEN) cont.
Clearances On Some Important Massachusetts Crops

Dimethomorph  
Glyphosate  
Methomyl  
Paraquat  

**PEA (SUCCULENT)**
Bacillus thuringiensis  
Clomazone  
Malathion  

**PEPPER (BELL)**
Bacillus thuringiensis  
Bifenthrin  
Clomazone  
Glyphosate  
Imidacloprid  
Paraquat  
Permethrin  
S-Metolachlor  

**POTATO**
2,4-D  
Bacillus thuringiensis  
Calcium Hypochlorite  
Copper Complex  
Sethoxydim  
Sodium Chlorate  
Spinad  
Sulfuric Acid  
Thiophanate-methyl  

**PUMPKIN**
Bacillus thuringiensis  
Clomazone  
Glyphosate  
Metalaxyl + Mancozeb  
Paraquat  

**RADISH**
Bacillus thuringiensis  
DCPA  
Methomyl  
Sodium Hypochlorite  
Spinad  

**RASPBERRY**

2,4-D  
Bifenthrin  
Captan  
Chlorpyrifos  
Fenhexamid  
Glyphosate  
Hexakis  
Malathion  
Myclobutanil  
Norflurazon  
Oxyfluorfen  
Sethoxydim  
Sulfur  

**SQUASH (WINTER/SUMMER)**
Bacillus thuringiensis  
Clomazone Dimethomorph  
Glyphosate  
Metalaxyl + Mancozeb  
Paraquat  
Permethrin  

**STRAWBERRY**
2,4-D  
Aclifluorfen  
Captan  
Chlorpyrifos  
Glyphosate  
Malathion  
Methyl Anthranilate  
Myclobutanil  
Oxyfluorfen  
Phospholipid (EUP)  

**SWEET CORN**
2,4-D  
Bacillus thuringiensis  
Propargite  

**TOMATO**
Bacillus thuringiensis  
Glyphosate  
Imidacloprid  
Paraquat  
Phospholipid (EUP)  

**TURNIP (ROOT/GREENS)**

Bacillus thuringiensis  
Chlorpyrifos  
Clopyralid  
Fosetyl-Al  
Esfenvalerate  
Malathion  
Methomyl  
Paraquat  
Permethrin  
Sinosad  
Tebufenoide  

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IR-4: A Success Story Worth Telling

Since 1963, the IR-4 Project has cooperated with researchers, producers, the agri-chemical industry and federal agencies to secure regulatory clearances for pest management products on specialty crops.

Since 2000, over 80% of IR-4’s research effort has involved new pest management technology with biopesticides and Reduced Risk chemistries. This huge shift was a direct result of the focus IR-4 placed on advocating this new technology. It was accomplished through a three pronged approach consisting of partnering with the agricultural chemical companies, educating specialty crop stakeholders, and partnering with the EPA to facilitate specialty crop registrations.

IR-4 recognized that without access to the new technology it could not assist specialty crop growers. So they solicited industry’s willingness to work together on new product development strategies which, for the first time, included specialty crops in their development plans. The foundation for this close working relationship was crop grouping, where studies on a few key crops would allow for registration on many more crops; many of those were specialty crops.

The other aspect of IR-4’s emphasis on new technology was the educational facet. It became clear that with reduced staffs in many of the companies due to mergers, federal and state research/extension scientists were not always given the ability to test the new materials. IR-4 instituted a mechanism through publication of New Pest Control Products/Transition Solutions List to inform the public about the virtues of the new technology to assist in the transition away from Food Quality Protection Act (FQPA) vulnerable crop protection tools.

Today, IR-4 continues to work as a model government funded program due to unique partnerships formed between the USDA (CSREES and ARS), the IR-4 Headquarters and Regional staff, the land grant university system, the crop protection industry, commodity and grower groups and the EPA.

Massachusetts Agriculture is Heavily Dependent on Specialty Crops

IR-4 thanks the entire Congressional delegation from Massachusetts for their support.

Estimated Potential Loss Without Use of the IR-4 Based Section 18s for Massachusetts (from 1998-2002)

<table>
<thead>
<tr>
<th>Crop</th>
<th>Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blueberry</td>
<td>$1,100,000</td>
</tr>
<tr>
<td>Cranberry</td>
<td>$70,300,000</td>
</tr>
<tr>
<td>Strawberry</td>
<td>$200,000</td>
</tr>
<tr>
<td>Total</td>
<td>$71,600,000</td>
</tr>
</tbody>
</table>

¹1997 Census of Agriculture
²From 1998 to 2002