

**IDAHO STATE DEPARTMENT OF AGRICULTURE
DIVISION OF PLANT INDUSTRIES
BUREAU OF FEEDS AND PLANT SERVICES
2000 SURVEY, NURSERY AND FIELD INSPECTION SUMMARY**

APPLE MAGGOT (AM) (Rhagoletis pomonella Walsh) - No positive detections were made at any sites trapped within the control area in 2000. Thirty-four adults were caught at a sentinel site on native hawthorn; in Boise County and two were trapped in Washington County on native hawthorn, both sites are far removed from any commercial fruit production area and are outside of the apple maggot control area or AM free zone. We are investigating some unconfirmed trap catches in Gem County that were caught in very early June. These catches were recorded as AM, but not confirmed. These AM were caught almost one and a half months earlier than any previous trap catch. Traps at the Boise County site have routinely caught AM for the past several years. In 2000, 277 traps were placed at 235 sites in seven counties (Boise, Bonner, Canyon, Gem, Owyhee, Payette, and Washington) in and around the commercial apple production areas of each county. This program is scheduled for a review to see that it meets the North American Plant Protection Organization protocol for fruit fly-free areas.



CEREAL LEAF BEETLE (CLB) (Oulema melanopus (Linnaeus)) – CLB was detected in Adams and Valley counties for the first time in 2000. There were 72 sites surveyed in 15 counties. The larval parasite, Tetrastichus julis, was recovered from two 1998 release sites in Bonneville County. This is a new county record for the occurrence of, Tetrastichus julis in Idaho. No recoveries of either larval or egg parasites were made from the other release sites in the state. Additional parasite releases were made in Boundary, Canyon, and Cassia Counties. A Pacific Northwest regional effort of increased bio-control releases will be undertaken over the next few years and Idaho will participate in this effort.



CHERRY FRUIT FLY (CFF) (Rhagoletis cingulata) - The Idaho State Department of Agriculture



CFF Larvae in a pitted cherry

implements a trapping program and tracks degree-day accumulations calculations for the western cherry fruit fly. The California Department of Food and Agriculture requires this for compliance with their Western Cherry Fruit Fly Quarantine for states wishing to export fresh sweet cherries to or through California. Fruit flies were caught at one site in Canyon County this year on May 24, 2000. A degree-day model is also used to supplement the trapping program. The dates that the 1060 degree-day accumulation was met or exceeded over the past few years is summarized in the table below. Written notification that fly emergence was eminent was sent to all growers through the Idaho Cherry Commission on May 22, 2000. No cherry fruit fly larvae were detected during inspection activities at any of the packing sheds this year. The degree-day calculations are based upon a look-up table and the Oregon State University, Department of Entomology degree-day computer model which is available on-line at <http://ippc2.orst.edu/cgi-bin/ddmodel.pl?clm>. This site has several degree-day models for various pests around the Pacific Northwest. The look-up table is from the publication "Orchard Pest Management" as published by the Good Fruit Grower, Yakima, WA 1993 and control applications are recommended on or prior to 1060 degree-day accumulations according to the publication.

Cherry Fruit Fly Degree-Day Accumulations 1998-2000

CITY	2000 (1060 Degree-Days)	1999 (1060 Degree- Days)	1998 (1060 Degree-Days)
PARMA	May 22	May 31	June 2
NAMPA	June 1	N/A	N/A
CALDWELL	May 31	May 28	June 3

EUROPEAN PINE SHOOT MOTH (EPSM) (*Rhyacionia bouliana* Denis & Schiffermuller) - In 2000,

detection surveys were carried out only in areas of the state where this insect is not known to occur. Trap sites were selected at each inspector's discretion based upon risk, accessibility, and presence of suitable host material. There were 149 traps placed in 24



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counties. Adult moth emergence can be expected around the first week of June in the Treasure Valley area. New positive sites were found in Camas County. This survey is performed to track EPSM's movement within the state for compliance with California, Nevada, and Oregon quarantines. Ten nurseries were trapped for compliance with the California EPSM quarantine. The EPSM is a pest of most Pinus sp. In Idaho, it is most commonly found on Mugo pine in ornamental situations.

***EXOTIC NEMATODE SURVEYS** - There were 152 samples taken from 21 southern Idaho counties. The samples were analyzed for the presence of the Northern root-knot nematode (*Meloidogyne hapla*), Columbia



The golden nematode female is golden when mature, hence the name.

root-knot nematode, (*Meloidogyne chitwoodi*), golden nematode (*Globodera rostochiensis*), soybean cyst nematode (*Heterodera glycines*), cereal cyst nematode (*Heterodera avenae*), pea cyst nematode (*Heterodera goettigiana*), and corn cyst nematode (*Heterodera zae*), as well as any other nematodes that might be present. All analyses for exotic species were negative. The most commonly encountered nematodes include the root lesion, stunt, spiral and pin nematodes. The Columbia root-knot nematode is already known to occur in Ada, Bingham, Blaine, Bonneville, Butte, Camas, Canyon, Cassia, Elmore, Gem, Gooding, Jefferson, Jerome, Madison, Minidoka, Owyhee, Power, Payette, Twin Falls, and Washington counties.

***GYPSY MOTH (GM) (*Lymantria dispar* (Linnaeus))** - Detection Trapping - In 2000, the cooperating agencies of the Idaho gypsy moth detection program placed 5,398 detection traps throughout the state (see table below). Trap placement by county is also shown below. Pheromone-baited traps were placed on a grid basis at a density of four traps per square mile. Traps were placed throughout the state in cities and towns and the surrounding urban areas and rural communities in accordance with a predetermined rotation schedule. Cities and communities where 20 or more move-ins occur are trapped irrespective of their place in the schedule. A

move-in is defined as an individual or family moving to Idaho from a state that is generally infested with gypsy moths. This information is derived from vehicle registration information supplied on a monthly basis by the Idaho Department of Transportation. Most infestations are initiated when an egg mass or other life stage of the gypsy moth arrives on an outdoor household article brought by someone moving into the area. Between May 1999 and April 2000, there were 5,070 move-ins to the state, a 1.6% increase over the previous year. Campgrounds, tourist attractions, and other high-risk locations were also trapped.

Delimitation Trapping – Delimitation traps were placed at only one location in 2000. At Huetter, between Coeur d’Alene and Post Falls in Kootenai County, 36 traps were placed in the one square-mile area surrounding the site where 5 gypsy moths were caught in 1998. An eradication treatment was applied to the site in the spring of 1999. No moths were caught at the site during the summer trapping in 1999. This is the second trapping season with no moths caught, this particular population is now officially declared eradicated. Due to the lack of significant contiguous host trees, no delimitation traps were placed at Arco in Butte County where a single gypsy moth was caught in 1998. Instead, the Arco area was trapped at the regular detection density again in 1999 and was not trapped in 2000.

Mass Trapping – No mass trapping was done in Idaho in 2000.

No gypsy moths were caught in Idaho in 1999 or 2000.

Number of gypsy moth traps placed, by agency, in Idaho in 2000.

AGENCY	DETECTION TRAPS	DELIMITING TRAPS	MASS TRAPS	TOTAL TRAPS
Idaho Dept. of Lands	3304	36	0	3340
Idaho Dept. of Agriculture	1453	0	0	1453
USFS - Region 4	541	0	0	541
USFS - Region 1	100	0	0	100
TOTALS	5398	36	0	5434

2000 Trap placement by counties.

COUNTY		DETECTION	DELIMITATION	MASS	TOTAL
NAME	NO.	4/MILE ²	36/MILE ²	9/ACRE	TRAPS
Ada	1	434	0	0	434
Adams	2	0	0	0	0
Bannock	3	118	0	0	118
Bear Lake	4	24	0	0	24
Benewah	5	218	0	0	218
Bingham	6	44	0	0	44
Blaine	7	152	0	0	152
Boise	8	4	0	0	4
Bonner	9	1280	0	0	1280
Bonneville	10	117	0	0	117
Boundary	11	46	0	0	46
Butte	12	0	0	0	0
Camas	13	0	0	0	0
Canyon	14	181	0	0	181
Caribou	15	18	0	0	18
Cassia	16	23	0	0	23

COUNTY NAME	NO.	DETECTION 4/MILE ²	DELIMITATION 36/MILE ²	MASS 9/ACRE	TOTAL TRAPS
Clark	17	2	0	0	2
Clearwater	18	111	0	0	111
Custer	19	29	0	0	29
Elmore	20	63	0	0	63
Franklin	21	24	0	0	24
Fremont	22	31	0	0	31
Gem	23	36	0	0	36
Gooding	24	66	0	0	66
Idaho	25	57	0	0	57
Jefferson	26	18	0	0	18
Jerome	27	26	0	0	26
Kootenai	28	909	36	0	945
Latah	29	442	0	0	442
Lemhi	30	20	0	0	20
Lewis	31	27	0	0	27
Lincoln	32	0	0	0	0
Madison	33	23	0	0	23
Minidoka	34	16	0	0	16
Nez Perce	35	171	0	0	171
Oneida	36	6	0	0	6
Owvhee	37	20	0	0	20
Pavette	38	35	0	0	35
Power	39	10	0	0	10
Shoshone	40	143	0	0	143
Teton	41	12	0	0	12
Twin Falls	42	204	0	0	204
Vallev	43	206	0	0	206
Washington	44	32	0	0	32
TOTALS		5398	36	0	5434

The Idaho Department of Lands administers this trapping program. A more detailed report and historical information may be obtained by contacting Mr. Ladd Livingston, Idaho Department of Lands, 3780 Industrial Ave. South, Coeur d'Alene, Idaho 83815, Phone (208) 769-1525.

***GRASSHOPPER / MORMON CRICKETS**

PLANNING : We conducted public meetings in Burley and Twin Falls on January 4, February 18, March 24, and April 24 of 2000. The United States Department of Agriculture (USDA), Bureau of Land Management (BLM), Idaho State Department of Agriculture (ISDA) officials, and representatives from all four Idaho Congressional Offices provided outlooks and updates on the grasshopper situation. Traditional farmers, organic farmers, beekeepers, aerial applicators, and pesticide company representatives attended the meetings and provided input to the development of program plans. Attendance at the meetings ranged from approximately 10 to 50.

Survey data from previous years indicated a trend toward increasing grasshopper populations. Agency officials and members of the public were very concerned that 2000 would be an outbreak year for grasshoppers in southern Idaho. As early as February, many parties called for a declaration of emergency. USDA and BLM staff carried out joint planning throughout the winter months. On March 13, personnel from five Federal agencies,

three State agencies, and all four Idaho Congressional Offices met in Boise to review and finalize overall plans. USDA and BLM staff met in Shoshone and Boise in April to provide training to field personnel.

ADMINISTRATIVE: Based on strong input from Idaho's public meetings and with additional input from the National Grasshopper Management Board, USDA Headquarters staff prepared a Risk Assessment for the insect growth regulator, Dimilin. Dimilin is even less toxic to nontarget organisms than the insecticides that have traditionally been used for grasshopper control in Idaho. In addition, Dimilin is less expensive.

BLM staff used this Risk Assessment and other documentation to prepare an Environmental Assessment (EA) as required under the National Environmental Policy Act (NEPA). The EA incorporated many measures to protect Federal threatened and endangered species and BLM species of special concern. The measures included restrictions against spraying sagebrush areas with the pesticides that have been traditionally used for grasshopper control. The measures also included a "skip-swath" system, which would result in only 50% of the infested area actually being sprayed. BLM officials thoroughly reviewed the EA and issued a Record of Decision that there would be no significant impacts.

The U.S. Fish and Wildlife Service reviewed the documentation provided by BLM and issued a Biological Opinion that the plan met the requirements of the Endangered Species Act (ESA) for protecting all the endangered and threatened species in the project area.

These processes satisfied the requirements under NEPA and ESA and made Dimilin available for use by USDA for grasshopper control in Idaho. Thus, Idaho became the only state where Dimilin could be used in the Federal Grasshopper Program, although it has been used in state, county and private grasshopper programs for several years. Dimilin also has been used extensively in USDA Gypsy moth and boll weevil programs.

Three organizations: the Committee for Idaho's High Desert, the American Lands Alliance, and the Idaho Watersheds Project; and an individual, Dr. Tom Cade, filed appeals with the Interior Board of Land Appeals seeking a stay of the program. Their appeal was based on their presumption that the program was going to be conducted in violation of NEPA. Their actions held the program in abeyance from May 12 until June 16 when the appeal was denied.

Two organizations: the Committee for Idaho's High Desert and the Idaho Watersheds Project; and an individual, Dr. Tom Cade, filed suit against BLM and USDA in Federal Court, June 16, 2000 to block action of the project. The basis of their suit was their belief that the program was going to be conducted in violation of NEPA. Although the filings in the lawsuit were laden with misconceptions and/or misrepresentations, the U.S. Attorney's Office indicated that the agencies could not hope to win in court. The plaintiffs' request for a temporary restraining order was settled out of court on June 21, when the defendants agreed to drop the insecticide, Malathion, from the 2000 program. At this time, the case remains unresolved, although the plaintiffs have requested a Summary Judgment against the agencies.

BLM funding was available at the beginning of the year and USDA funding became available June 7. Therefore, lack of funding for the program was not a delay this year as has previously been the case.

The Plant Protection Act of 2000 reiterates the mandate for USDA to conduct grasshopper and Mormon cricket control programs on Federal land. The FY-2001 Agriculture Appropriation Bill did not include a line item for grasshoppers, so funding will have to be sought out on an emergency basis when the need occurs.

SURVEY: Grasshopper and Mormon cricket population levels in Idaho did not reach the magnitude anticipated by the public and most authorities. Increasing populations during the late 1990's and high counts during the 1999 Fall Survey, had created expectations of a grasshopper emergency in 2000. The prolonged, warm, autumn of 1999 was expected to result in heavy egg deposition rates in rangeland.

High densities were observed at many locations in Southern Idaho, but widespread infestations did not occur on public rangeland early in the season. Most grasshopper complaints came from areas where the insects were in the crops or on other private property, especially the corners of pivot-type irrigated fields. Investigation of some cases revealed that hoppers had hatched better out in the crops rather than in the rangeland.

Several factors may have been at play. The overall grasshopper population may have been diminished by diseases that were favored by the eight consecutive rainy days in May 2000. Dry conditions during the autumn of 1999 may have led to female grasshoppers depositing their eggs in hay and crop fields rather than rangeland. We cannot account for the apparent lack of destruction of the eggs by tillage practices in crop fields.

Later in the season, we detected extensive, heavy infestations of grasshoppers in Camas and Valley Counties. The infestations were on private land, and therefore not subject to treatment under the Federal program. In October, a Declaration of Emergency was requested for Valley County due to the grasshopper damage to hay and forage crops.

TREATMENTS: Twelve hundred acres of Federal rangeland were treated. All treatments were with 5% Carbaryl bait at a rate of 10 pounds/acre. Treatments were near Blackfoot, Bliss and Hazleton (see table below).

YEAR 2000 TABLE OF TREATMENTS

County Location	Date	Acres	Application	Species	GH/ Sq Yd	
					pretreat	posttreat
BINGHAM						
Pingree	6/27	90	Pick-up truck	<u>Melanoplus sanguinipes</u>	15	8
GOODING						
Bliss	7/1	420	Aircraft	<u>Aulocara elliotti</u> <u>M. sanguinipes</u> <u>Oedaleonotus enigma</u> Total	15	3
JEROME						
Kimama Butte	6/27-8	90	All terrain vehicle	<u>Camnula pellucida</u>	50	**
Cinder Butte	7/25	600	Aircraft	<u>M. sanguinipes</u>	14	7

** Grasshopper population collapsed on rangeland and adjacent private land indicating possible treatment by unknown parties.

The ISDA purchased grasshopper bait for distribution to landowners. ISDA, USDA and the Idaho Cooperative Extension Service worked together to distribute the bait to farmers and ranchers in areas where there were heavy grasshopper infestations on private land or on public lands that did not qualify for treatment under the Federal program. This cooperative program provided approximately 90,000 pounds of bait for private landowners to apply to their rangeland, pasturelands or wastelands. About 30% of the total bait went to Valley County.

PREDICTIONS: The 2000 Fall Surveys do not indicate a high likelihood of extensive grasshopper infestations in Idaho during 2001. Localized outbreaks of high density may be expected in areas that are traditionally subject to attack.

In 2001 and beyond, there may be need for grasshopper control to protect re-vegetation plantings on large acreages of public lands burned during the 2000 fire season.

The lack of a line item for grasshopper control in the Agricultural Appropriation will require significant documentation and administrative procedure to secure funding in a timely fashion. The grasshopper program will have to compete with other emergency programs for contingency funds to support survey and control operations.

If future programs contain nay BLM species of concern, the efficacy of grasshopper control will be significantly diminished from the protective measures that are equal to or greater than those proposed for the 2000 season,. If grasshopper programs are permitted to proceed with bait as the only treatment option, the cost and logistical problems will mandate a triage approach that will allow only the most horrific infestations to be addressed.

The success of the plaintiffs this year in their lawsuit to stop grasshopper treatments with threats of temporary restraining orders will encourage them to continue their efforts to delay, diminish, and destroy our ability to effectively protect crops from grasshoppers and Mormon crickets. At this time we cannot accurately predict the outcomes of the plaintiffs’ Request for Summary Judgment. We are concerned that it will prevent continuation of the USDA grasshopper management program in Idaho. This may limit grasshopper control programs to those conducted by private or other nonfederal entities.

USDA is preparing a new Environmental Impact Study, which should reduce the likelihood that the U.S. Attorney’s Office will be unable to defend our programs against lawsuits. Options suggested by the plaintiffs and others with similar agendas will continue to be proposed. These include compensating farmers for losses caused by grasshoppers and significant revision of grazing practices on public lands.

2000 BAIT DISTRIBUTION AND BALANCE TOTALS

COUNTY	NO. OF FARMERS/RANCHERS	AMOUNT DELIVERED	AMOUNT DISTRIBUTED	AMOUNT REMAINING
ADAMS	62	7,500	5,100	2,400
BANNOCK	5	1,150	700	450
BEAR LAKE	27	2,000	1,600	400
BLM	UNKNOWN	12,000	12,000	0
CAMAS	7	4,050	3,550	500
CASSIA	9	1,850	850	1,000
FRANKLIN	2	2,000	150	1,850

2000 BAIT DISTRIBUTION AND BALANCE TOTALS

COUNTY	NO. OF FARMERS/RANCHERS	AMOUNT DELIVERED	AMOUNT DISTRIBUTED	AMOUNT REMAINING
GOODING	4	2,000	1,150	850
JEROME	4	6,000	3,150	2,850
LINCOLN	39	25,550	14,550	11,000
MINIDOKA	8	6,100	3,350	2,750
ONEIDA	0	2,000	0	2,000
OWHYEE	1	1,800	500	1,300
POWER	7	2,950	1,250	1,700
PPQ BOISE	4	3,500	3,250	250
TWIN FALLS	2	2,000	100	1,900
VALLEY	128	33,000	29,250	3,750
WASHINGTON	14	10,750	8,300	2,450
NO DISTRIBUTION SHEETS(COUNTY)	UNKNOWN	1,800	1,800	0
TOTAL	323	128,000	90,600	37,400

This report was prepared by Mr. Dave McNeal and Mr. Rob McChesney, USDA-APHIS-PPQ, 9134 W. Blackeagle Drive, Boise, Idaho 83709, Phone (208) 378-5797.



JAPANESE BEETLE (*Popillia japonica* Newman) – Traps were placed at 195 sites in 44 counties. All traps were found negative. Japanese beetle quarantines are maintained and vigorously enforced by California, Idaho, Oregon, Utah, and Washington. This beetle and its larval form are known to infest over 400 horticultural and ornamental plants, including sod. Establishment of the beetle in Idaho could seriously affect exports to the above listed states and British Columbia. The beetle is known to infest most states east of the Mississippi River.



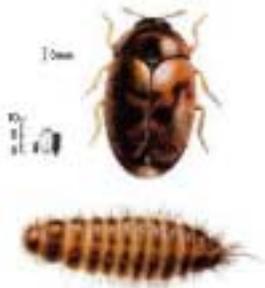
***KARNAL BUNT (*Tilletia indica*)** – There were 65 samples processed and entered into the National Agricultural Pest Information System (NAPIS) system. All of the samples were collected and analyzed according to the 2000 National Karnal Bunt Monitoring Plan. All samples were negative for Karnal bunt. A complete listing of all survey samples taken are listed below:

COUNTY	POSITIVE	NEGATIVE	TOTAL
BANNOCK	0	2	2
BINGHAM	0	12	12

COUNTY	POSITIVE	NEGATIVE	TOTAL
BONNEVILLE	0	1	1
BOUNDARY	0	1	1
CANYON	0	5	5
CASSIA	0	10	10
ELMORE	0	2	2
FREMONT	0	2	2
GOODING	0	2	2
JEFFERSON	0	4	4
KOOTENAI	0	1	1
LEWIS	0	4	4
MADISON	0	3	3
NEZ PERCE	0	6	6
OWYHEE	0	1	1
POWER	0	8	8
WASHINGTON	0	1	1
TOTAL		65	65

***KHAPRA BEETLE (Trogoderma granarium (Everts))** Forty-one sites in 26 counties were trapped for the presence of the Khapra Beetle (Trogoderma granarium). Trece' "Storgard Flite-Trak M²" traps were used and re-baited half way through the survey period. The traps are designed to attract Tribolium spp., Trogoderma spp., and Oryzaephilus spp. Seed companies and feed mills that grow, sell, or import seed and/or grain were targeted for survey. Five traps were placed at each site and serviced every two weeks (175 traps were placed for the entire survey). Specimens collected were preserved in alcohol and sent to Mr. Frank Merickel, Collection Manager, WFBARR Entomological Museum at the University of Idaho in Moscow, Idaho for identification. No Khapra beetles were detected. Many stored product pests that were detected were mostly of the genera Trogoderma, Cryptolestes, Oryzaephilus, and Sitophilus. The granary weevil (Sitophilus granarius) was the

most populous species encountered. Two potentially new state records were also detected Latheticus oryzae and Murmidius ovalis. The Khapra beetle is considered to be one of the world's most destructive pests of grain products and seeds and is subject to numerous quarantines, domestic and foreign. It probably originated from regions in India and Bangladesh, but has since spread to other areas including northern and eastern Africa, southern Europe and the Mediterranean region, the Middle East, and east into Asia. This pest thrives in warm, dry climates. Populations build rapidly in a short time under hot, dry conditions, but can survive in colder climates in heated situations such as warehouses, food plants and grain storage. The beetle cannot fly and is, therefore, spread mainly by commerce and trade.



***PLUM POX VIRUS (PPV)** - Plum pox is a virus disease that affects nearly all Prunus species. It is also known as Sharka. It is a member of the Potyviridae, and so is related to Bean common mosaic virus and Potato virus Y. Plum pox disease is spread by aphids and also by grafting. There are several strains of the virus which differ in host range and aggressiveness. Some strains are thought to be seed-borne, however, there is still debate on this issue.



Plum pox was originally observed in 1915 in Bulgaria on plums. Since then the disease has spread to most of eastern and western Europe. It moved to the Western Hemisphere in 1992 when it was discovered in Chile. In 1999, it was discovered on some peaches in a packing shed in Adams County, Pennsylvania. The identity of the virus was confirmed by the USDA as strain D of the plum pox virus. Strain D is known to be slow growing. Aphids are capable of spreading the virus only short distances (~1 mile), so the biggest threat for spread is through propagation material because the D strain does not survive long in the aphid hosts. There is a possibility that this outbreak can be contained. Initial surveys of the area indicated that the disease was limited to 18 blocks in 2 townships within the county, all within a 1.5 mile radius. However, there was no evidence of how the disease became established in Pennsylvania.

The immediate reaction from the USDA was to set up a survey to delimit the area of infection in Pennsylvania, and to quarantine the area. Any shipments from the infected area were tracked, tested and destroyed. The USDA then proposed a nationwide survey to determine if any other areas were affected, and to also establish “free from” zones for ease of continued trade. All Prunus spp. were to be tested, especially those used for propagation.

In the spring of 2000, Idaho participated in the nationwide plum pox survey. Since the region does little propagation of Prunus sp., a broad survey throughout state was conducted. To insure that any likely infections were discovered, fruit farms, nurseries, and some homeowners were surveyed.



The survey was completed by ISDA Investigators and some additional staff. The largest orchards in the state, located in Canyon County were contacted. All of the Prunus sp. acreage in 5 orchards were walked, and investigators looked for suspicious symptoms. Leaf samples were taken from each plot (the number of samples depended on the size of the plot) and then sent to the ISDA Plant Industry Lab for analysis.

Twenty-seven nurseries from 10 counties were also surveyed. The sampling procedure was similar to the one used in the orchards; the nurseries were walked and leaves from any suspicious looking Prunus species were sampled. The number of leaf samples taken was again, dependant on the number of Prunus sp. present in the nursery.

Only one nursery, located in Boundary County grew any Prunus sp. for propagation purposes. Leaves from all of the mother trees were sampled and tested.

All homeowners who had recently imported Prunus sp. from Pennsylvania were contacted. In these cases, leaves from all of the imported trees were sampled and tested.

Once the samples were collected, they were transported on ice to the Plant Industry Lab in Boise. There the leaves were tested using an ELISA (enzyme linked immunosorbent assay) test for the plum pox virus. The antiserum used in the ELISA test had been assayed previously by the USDA and deemed sensitive and accurate for all strains of the plum pox virus.

All samples from within Idaho were negative for the virus. All samples taken in the USA, except in Pennsylvania, have been negative. The survey in Pennsylvania found additional positive samples in a second county. Surveys of homeowners and weed hosts have been run and found all negative to date. The acreage initially found to be infected in Pennsylvania has been destroyed.

Although the infection in the US appears to be limited to Pennsylvania, an outbreak was found in Canada around the Niagara region of Ontario in the summer of 2000. The Canadian Agriculture Service estimates that this infection has been in place longer than 10 years and went unnoticed. Further surveys of the area were made, and infections were found in other areas in the Ontario region, as well as one farm in Nova Scotia. No positive samples were found in British Columbia.

Surveys will continue in Pennsylvania and New York near the Canadian border. States that had not completed their initial surveys began when the temperatures were less than 85 degrees F. A second year of surveys is being contemplated in the US.

REGULATORY INCIDENTS:

ROYAL NATIONAL ROSE SOCIETY - On August 17, 2000, the ISDA was notified by USDA APHIS PPQ that six individual rose plants may have been imported via Canada from the United Kingdom illegally. The roses were sent by the Royal National Rose Society (RNRS). RNRS provided Post Entry Quarantine forms and instructions to complete them to each recipient of a rose plant. PPQ also forwarded to ISDA copies of the completed forms for imports into Idaho. All of those who received the rose plants in Idaho were contacted by ISDA investigators to see if they would relinquish the plant to ISDA or agree to participate in a post-entry quarantine program. None wished to participate in a post-entry quarantine and all of the roses were collected and destroyed. Three of the plants collected were dead and three were alive. No disease symptoms were detected.

EXOTIC WOOD INFESTING BEETLES - In August of 2000, ISDA was contacted by a University of Idaho, Bannock County Extension Educator about a resident who had contacted him concerning an ornamental bird house purchased at a local flower shop. The individual reported finding wood frass and heard chewing sounds coming from the bird house. An ISDA investigator met the individual at the flower shop where the bird house was purchased. Subsequent interviews determined that the flower shop had purchased approximately 100 of the bird houses from Taipei Trading of Murray, UT. Since the bird houses were of foreign origin, the infested bird house and information about the importer were turned over to the Idaho USDA, APHIS, PPQ office for investigation. USDA determined that the bird house contained a rather large larvae of the genus Hesperophanes, an actionable pest according to USDA.

GYPSY MOTH - South Dakota Department of Agriculture found gypsy moth egg masses on December 15, 2000 on cut Scotch pine Christmas trees at a sales lot in South Dakota. Shipping records indicated that the Scotch pine trees were obtained from Michigan West Shore Nursery, a Christmas tree broker in west central Michigan. Egg masses were found on trees at three Alco (Duckwall-Alco) stores. Laboratory examination confirmed at least one viable egg mass was present among the specimens collected. Trees remaining from the infested shipments have been destroyed. This broker had obtained the trees from Badger Evergreen Nursery, Allegran, Michigan in the southwest part of the state. Michigan Department of Agriculture (MDA) inspectors identified the specific field, which was the source of these trees. Spray records showed that the perimeter trees, as well as the Scotch pine, had been treated at an appropriate time by a licensed firm. The field had been

inspected and certified by MDA staff. Shipment records obtained late in the day on December 18, 2000 showed that Scotch pine trees from this firm had been distributed to Alco stores in nineteen other states.

Three Idaho companies received loads of Scotch pine Christmas trees from this same broker. Shipments were made to sales lots at Alco stores in Soda Springs, Montpelier, and Salmon, Idaho. Most of the tree lots were sold out and inspections of the remaining trees did not turn up any gypsy moth egg masses. These area will be targeted for extra or possible delimit trapping during the 2001 trapping season.

VARROA AND HONEY BEE TRACHEAL MITE SURVEY - At the request of the Idaho Honey Producers Association, ISDA conducted a survey for the presence of and level of infestation of the Varroa and tracheal mites in Idaho bee keeping operations. Eighteen beekeepers volunteered to participate in the survey. The beekeeper operations range from 30 colonies to 6,500 colonies. In total, 653 samples were taken from the eighteen participating beekeepers. With only two exceptions, Varroa mite levels were low with less than 8 mites per beekeeper sampled; and on a weighted average (taking in account the number of hives sampled for each beekeeper), only 4.4 mites were found. Most Beekeepers were using Checkmite™ or Apistan™ for Varroa mite control and a combination of grease and essential oils patties for tracheal mite (TM) control. The larger bee keeping operations (i.e. $\geq 1,200$ hives) generally had good Varroa mite control, but a few of these operations had higher tracheal mite levels than would have been expected. The smaller operations varied greatly, some having very high Varroa and tracheal mites and some having very low levels of both. On February 26, ISDA met with some of the participants of the survey to review the results. It was generally agreed that Varroa mite control was achievable with products available and the results showed that where treatments had been performed they were effective. Control of the TM was a different matter. Tracheal mite populations were much higher than anticipated, and may in fact be a more serious control problem than the Varroa mite. Many different methods were being used to control the tracheal mite, and it appears that the formic acid gel seemed to get the best control, unfortunately due to packaging problems it was not readily available to everyone. The data shows that taking some control measures irrespective of the method was preferable to not treating at all. One participant noted that any of his hives found to have a TM infestation rate of 25% or higher did not survive the winter well, if at all. The participants agreed that the survey should continue following the four participants with the highest TM levels and the four participants with the lowest TM levels.

DISEASES AND PESTS FOUND DURING 2000 FIELD INSPECTIONS FOR EXPORT CERTIFICATION

Alfalfa seed: Alfalfa mosaic virus was detected in 90 acres. No Verticillium albo-atrum, Clavibacter michiganensis pv. insidiosus, Xanthomonas campestris pv. alfalfae, Ditylenchus dipsaci, Hieracium pilosella, Orobanche spp., or Striga spp. were found.

Barley: One trial plot of five acres was submitted for inspection. No Tilletia controversa, or High plains virus were observed.

Beans, Dry: Bean common mosaic virus was observed in 39 acres. Bean southern mosaic virus, Pea early browning virus, and Pea enation mosaic virus were not observed in any of the fields. No Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, or Anthracnose was observed in any field.

Beans, Garden: Bean common mosaic virus was detected in 12 acres. Bean southern mosaic virus, Pea early browning virus, and Pea enation mosaic virus were not observed in any of the fields. No Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, or Anthracnose was observed in any fields.

Cantaloupe: Fields were inspected for Cucumber mosaic virus, Muskmelon mosaic virus, Squash mosaic virus, Watermelon mosaic virus, Xanthomonas campestris pv. cucurbitae, Pseudomonas syringae pv. lachrymans,

Mycosphaerella melonis, Colletotrichum lagenarium, and Acidovorax avenae supsp. citrulli. None of the diseases listed were observed in any fields inspected.

Carrot: Fields were examined for Alternaria dauci, A. radicina, Cercospora carotae, Erwinia carotovora, and Xanthomonas campestris pv. carotae. No diseases of quarantine significance were observed.

Clover: Ten fields totaling 103 acres were inspected and found free from Leafy spurge, Broomrape, and Witchweed.

Corn: No Downy mildew diseases, Maize dwarf mosaic virus, Maize chlorotic mottle virus, Southern corn leaf blight, or Stewart’s bacterial blight were observed. A total of 15.5 acres were confirmed positive for High plains virus. A total of 69 acres were confirmed positive for Wheat streak mosaic virus. Insect damage was prevalent in many fields. Inspectors continued to observe symptoms similar to Eyespot (Kabatiella zae), but the disease was never confirmed in any fields.

Cucurbita spp.: Seven fields totaling 15 acres, including trial plots, were inspected for several diseases including Cucumber mosaic virus, Muskmelon mosaic virus, Squash mosaic virus, Watermelon mosaic virus, Pseudomonas syringae pv. lachrymans, Xanthomonas campestris pv. vesicatoria, and X. campestris cucurbitae. None of the diseases listed were observed.

Garlic: Two fields totaling 14.5 acres were inspected and found free from any disease symptoms of quarantine significance, including white rot (Sclerotium cepivorum).

Hops: One group of fields totaling 600 acres was inspected for one grower and found free of Verticillium dahliae.

Lettuce: Forty-five fields totaling 292.5 acres were inspected for Lettuce mosaic virus. All fields were found negative for this disease.

Mint: Twenty-one fields totaling 209 acres were inspected for Mint root borer, Mint stem borer, and Verticillium dahliae. Thirty acres were found positive for Verticillium dahliae. All positive fields were located in the Magic Valley.

Onion, Chive, Leek: One-hundred and Seventy fields totaling 1,233.8 acres were inspected. All fields inspected were found free from Ditylenchus dipsaci, D. destructor, Alternaria porri, Urocystis magica, Colletotrichum circinans, and Onion yellow dwarf virus. Twenty acres were found infested with Botrytis alli. Several fields totaling 37.7 acres were found positive for Pink root (Pyrenochaeta terrestris). No Onion white rot (Sclerotium cepivorum) was observed in any of the fields submitted for inspection.

Peas: No Ascochyta pisi, Pea early browning virus, Pea enation mosaic virus, Pea seedborne mosaic virus or Xanthomonas campestris pv. phaseoli were observed in any of the fields. Inspections confirmed 25 acres positive for Fusarium oxysporum f.sp. pisii.

Pepper: Two trial plots totaling five acres were inspected and found free from observable diseases of quarantine significance.

Radish: Fields were inspected and found free from Colletotrichum higginsianum, Xanthomonas campestris pv. campestris, and X. campestris pv. raphani.

Turnip: One field totaling 9 acres was inspected and found free from Alternaria brassica, Colletotrichum lagenarium, Leptosphaeria maculans, Pseudomonas syringae pv. maculicola, and Rhizoctonia solani.

NUMBER OF FIELDS AND ACREAGE SUBMITTED FOR INSPECTION UNDER THE IDAHO RULES FOR PHYTOSANITARY AND POST-ENTRY CERTIFICATION AND RULES CONCERNING BACTERIAL DISEASES OF BEANS FOR THE 2000 FIELD SEASON

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	150	3007.8	2962.8

Barley	1	5	5
Beans, Dry	217	3308.7	7038.9
Beans, Garden	1252	18200.2	38701.2
Cabbage	0	0	0
Cantaloupe	7	21.3	16.7
Carrot	52	323.3	293.9
Chive	6	51	51
Corn	815	7063.3	13067.1
SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Corn, Area	33	690.5	
Cucumber	5	11	6.8
Dill	1	6	6
Garlic	2	14.5	14.5
Leek	8	16.2	16.2
Lettuce	45	292.5	282.5
Mint	21	209.6	223
Onion	156	1166.6	1141.4
Peas	342	5104.6	9867.9
Peas, Area	186	5623.3	
Pepper, Bell	2	4	4
Pepper, Hot	4	1	1
Potato	0	0	0
Pumpkin	2	5.5	5.5
Radish	18	213	213
Red Clover	10	208	208
Squash	2	4	4
Turnip	1	9	9
Watermelon	1	2	2
Wheat	0	0	0
TOTALS	3337	45,561.9	74,135.9

The field disease report was compiled by Curt Thornburg and Garry West with the Idaho State Department of Agriculture in Boise, Phone (208) 332-8620 and Twin Falls, Phone (208) 736-2195 respectively.



PLANT PATHOLOGY LAB SAMPLE SUMMARY 2000

The Plant Pathology Lab received 1,197 samples in the year 2000, and ran a total of 2,497 tests on these samples. The average turnover time for a sample was 18.99 days.

ISDA participated in two national surveys this year. The first was the Karnal Bunt Survey, now in its 4th year. Sixty-five wheat samples were received for this survey

and 65 tests were run on the samples. There were no positives. The second survey was the Plum Pox Survey. This was the first year for this endeavor. Seven hundred eighty nine tests were run on 598 samples. There were no positives.

The lab received 249 bean seed samples in 2000, including samples from the states of: Washington, California, Idaho, Michigan, and the countries of: Chile, South Africa, Guatemala, Netherlands, Greece, Spain, and Mexico. Four samples were found positive for disease; two samples were positive for Brown Spot (*Pseudomonas syringae* pv. *syringae*), from the Netherlands, and two samples were positive for Halo Blight (*Pseudomonas syringae* pv. *phaseolicola*), from the Netherlands and Michigan.

Also of interest, one lot of alfalfa seed from California was found infected with *Clavibacter michiganense* pv. *insidiosum*, and samples of wheat seed and wheat straw from Idaho were found positive for *Urocystis* sp.

The state of Nevada their field samples to the ISDA Plant Industry Lab in 2000. Fifty samples were accepted and 97 tests were run on the samples. Alfalfa Mosaic Virus (AMV) was found in 7 of the Nevada samples. AMV was also found in one pea field in Idaho in the summer of 2000. High Plains Virus and Wheat Streak Mosaic Virus were fairly heavy in Idaho fields this year.

CROP	# SAMPLES	# TESTS	POSITIVES (Organism)
Bean			
seed	249	1131	2 (<i>Pseudomonas syringae syringae</i>) 2 (<i>Pseudomonas syringae phaseolicola</i>)
field	18	35	6 (Bean Common Mosaic Virus)
Misc. Seed			
alfalfa	38	69	1 (<i>Clavibacter michiganense insidiosum</i>)
barley	1	3	0
chickpea	1	1	0
corn	2	2	0
garlic chives	1	2	0
oats	6	18	1 (<i>Urocystis agropyri</i>)
pea	13	13	0
pepper	1	2	
radish	8	14	0
tomato	2	2	0
wheat	83	97	1 (<i>Tilletia controversa</i>) 2 (<i>Urocystis</i> sp.)
wheat straw	7	21	2 (<i>Urocystis</i> sp.)
Potato			
seed	22	62	10 (Potato Leaf Roll Virus) 3 (Potato Virus Y)
Plum Pox	598	798	0
Misc Field			
Alfalfa	56	101	9 (<i>Phoma medicagenis</i>), 7 (Alfalfa Mosaic Virus)
Carrot	21	24	
Corn	30	56	8 (Wheat Streak Mosaic Virus), 1 (High Plains Virus)

CROP	# SAMPLES	# TESTS	POSITIVES (Organism)
			10 (WSM and HP Virus both)
Compost	1	1	0
Euyonomous	1	2	0
Garlic	1	1	0
Kalanchoe	1	1	1 (Impatiens Necrotic Spot Virus)
Mint	5	5	1 (<i>Verticillium dahliae</i>)
Onion	11	11	2 (<i>Botrytis cinerea</i>), 1 (<i>Botrytis allii</i>)
Pea	11	14	1 (Cucumber Mosaic - outside lab)
			1 (Alfalfa Mosaic Virus), 3 (<i>Fusarium oxysporum</i>)
Pepper	1	1	1 (Beet Curly Top Virus)
Potato	2	2	2 (<i>Streptomyces scabies</i>)
Tomato	3	4	1 (Beet Curly Top Virus), 1 (<i>Pseudomonas</i> sp)
Vinca	1	1	0
Wheat	1	2	0
Willow	1	1	0
Total	1197	2497	80

The Plant Pathology Laboratory Report was compiled by Ms. Liz Vavricka, Principal Microbiologist, Boise, ID, Phone (208) 332-8640.

EXPORT CERTIFICATION FOR THE 2000 CALENDAR YEAR

The Bureau issued 3,454 Federal and 2,701 State Phytosanitary Certificates for 79 different types of commodities to 96 countries. The Bureau certified 163,790,554 pounds of seed and other commodities for export.

NURSERY INSPECTIONS FOR COMPLIANCE WITH THE IDAHO NURSERY LAW TITLE 22, CHAPTER 23 IDAHO CODE

In 2000, there were 1,442 licensed nurseries, and of those, 1,024 were inspected for compliance with the Idaho Nursery and Florists Law and for the presence of plant pests and noxious weeds. In addition, specific checks were made for compliance with various state laws, quarantines, or pests of particular concern. The results are listed below:

Quarantine/Pests	No. Inspections	Incidents	Corrective Action	Stop Sales
Certified Seed Potatoes	142	1	1	1
Japanese Beetle	377			
Pine Shoot Beetle	299			
Noxious Weeds	484	14	10	1
Aphids	615	39	32	
Onion White Rot	213	6	5	6

Quarantine/Pests	No. Inspections	Incidents	Corrective Action	Stop Sales
European Pine Shoot Moth	311	11	11	
Grape Quarantine	140	1		
Gypsy Moth	337			
Hops Quarantine	107			
Idaho Seed Law	383	1	1	
European Corn Borer	291	3	2	2
Mint Quarantine	170	1	1	1
Peach Tree Quarantine	143			
Red Imported Fire Ants	371			
Nematodes	1			
Late Blight	315			
General Pests	1024	53	46	
Total Inspections	5,723	129	109	11

This annual report and previous years reports, as well as pest distribution maps, laws, rules, press releases, and various forms can be found on the ISDA World Wide Web Home Page at <http://www.agri.state.id.us>.

* - Indicates a program carried out under State/Federal funding. Those not marked with an asterisk were carried out under state funding only.

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