

IPM makes progress, enemies advancing on pests

BELTSVILLE, Md. — Integrated pest management (IPM) is making good progress in America, according to Lloyd Knutson, a leading U.S. Department of Agriculture insect scientist.

Speaking recently at the First Japan-USA Symposium on IPM, Knutson said that IPM progress is due to advances by scientists who explore the world, and never roam far from a microscope. He spoke of entomologists who learn to control pests of the farm and forest by using the pests' natural enemies — their parasites, predators and diseases.

Natural enemies and other biological control techniques are the "foundation" of IPM, said Knutson. Scientists developed the IPM concept in recent years to give people alternatives to relying solely on pest control by chemical pesticides.

Integrated pest management is literally just that, an integration of any available pest control angle, usually including close monitoring of pests in the field, cultural practices such as a timely plowing, biocontrols, and limited use of pesticides.

"We are only beginning to build our natural enemy foundation. Yet, IPM is already a proven technology in America, used to control pests of cotton, alfalfa, soybeans, sorghum, corn and apples," Knutson said at the IPM Symposium, which was held in Tsukuba, Japan's "science city."

Knutson is Chairman of USDA's Insect Identification and Beneficial Insect Introduction Institute in Beltsville, where nearly a third of a million insects and mites are identified each year for biological control projects and

other research.

The use of natural enemies for controlling pests, said Knutson, is a cost-effective, low-energy way to increase agricultural production. Also, natural enemies, when carefully selected, pose no hazard to the environment.

Research on natural enemies takes two roads at the same time. For a particularly troublesome pest, scientists first identify those natural enemies found with the pest in the field. Then, steps are taken to conserve the in-field enemies. More discretion may be taken in spraying pesticides, for instance.

The other research road is to import natural enemies from other parts of the country or world. Effective "imports" are often found in areas where the pest first became a pest. For example, USDA scientists found aggressive parasitic mites of the Mexican bean beetle in parts of Central

America. Before any natural enemy is imported, studies are conducted under strict quarantine to make sure the imported creatures harm only the target pest.

Knutson said in Japan that an advantage of using natural enemies over using other control methods is that the effectiveness of a pest's enemy often increases as populations of the pest increases. Because the natural enemy, say a parasitic mite, feeds on a pest such as a beetle, the mites may multiply faster than the beetles. A point is reached when the mite population overwhelms the beetle population, causing both to crash.

Because success means the near disappearance of both pest and enemy, scientists can have difficulty proving successful control by natural enemies. However, there are good success stories. Knutson said that two of the best are control of cereal leaf beetles

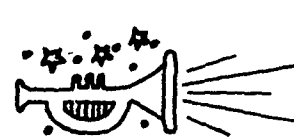
and alfalfa weevils by natural enemies discovered and reported by USDA entomologists.

USDA's Agricultural Research Service (which includes Knutson's Institute) does more biocontrol research than any other Federal agency. However, only about 170 ARS scientists are involved with biocontrol work, Knutson said, many only part time. Those not tracking down natural enemies are developing "biorational" techniques to disrupt the life cycles of target pests. For example, sterile males are sometimes used to disrupt reproduction, or insect juvenile hormones are synthesized to prevent puberty.

Knutson said that despite successes already achieved, progress in putting IPM to work has seemed slow at times. "Much of the foundation work, the research on natural enemies, has not reached the farm. Each biological control agent required considerable study

because of the complex behavior and ecology of living entities. We first must determine the vulnerabilities of a pest. Then, each new bio control agent, requires a unique set of in-the-field procedures.

Using IPM on the farm, often takes a lot of time, special knowledge, and a high initial risk financially, Knutson said. "However, now that IPM is becoming a proven option, and there is more IPM-related research in the works, what we need today is a crew of well-trained IPM specialists to make IPM more available to the average farmer."



Ohio study reveals alfalfa seeding failure clue

WOOSTER, Ohio — A study by Ohio agronomists has confirmed that alfalfa plants appear to contain some sort of organic compound or compounds that may prevent or inhibit germination of seed of their own species. This helps explain why efforts to use sod-seeding techniques to renovate old alfalfa fields have frequently met with little success.

Paul Henderlong, a research agronomist for the Ohio Agricultural Research and Development Center and Ohio State, reported the research today during technical sessions at the American Society of Agronomy annual meeting.

In fall 1980, Henderlong and

graduate research associate Hwei-Ying Li collected samples of established alfalfa both before and after fall dormancy. Five-year-old plants were replanted in a greenhouse and samples of leaves, stems, crowns, and roots were collected from other plants in the same field.

Li prepared straight water extractions from leaf, stem, and crown plus root tissues and let the extractions incubate for various lengths of time. The water extractions were then applied in various concentrations to media used for standard laboratory germination tests of alfalfa seed.

The water extractions prepared from both fresh and dried alfalfa

plants inhibited germination even at the very low dosage rates. Agronomists have observed a number of cases where one plant produces compounds which adversely affect another species. This phenomenon is known as "allelopathy." However, when an established plant produces a compound or compounds which adversely affect plants of its own species (self toxic), the phenomenon is labeled "autotoxicity."

The autotoxicity of alfalfa helps explain why efforts to sod-seed alfalfa into deteriorating or thinned stands — or even seeding alfalfa in fields where an old alfalfa stand had been plowed up —

have often been unsuccessful.

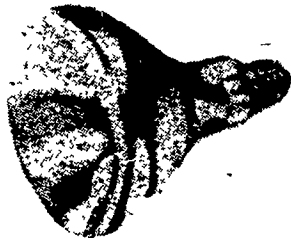
The Ohio scientist said studies are now underway to characterize the compound or compounds responsible for autotoxicity in alfalfa. Whatever is responsible is water soluble and while present in all plant parts, is more prevalent in leaves and stems than in crowns and roots.

The no-tillage and sod-seeding methods of renovating pastures and hayfields probably should not be used to rejuvenate established alfalfa stands with new alfalfa seed. It appears that successful reestablishment of alfalfa may require some sort of crop rotation to assure that new alfalfa seeding follows some crop other than alfalfa.

WISHING YOU A MERRY CHRISTMAS
AND A PROSPEROUS NEW YEAR
FROM ALL OF US AT E.M. HERR
FARM & HOME SUPPLY AND EQUIPMENT, INC.
Thank You For Your Patronage Throughout 1981

FROSTED HEAT LAMPS

\$1.69
Reg. \$1.99
• 125 or 250 Watt
Infrared Also
Available



PORTABLE

OIL

HEATERS



REDDY HEATER

	Reg.	SALE
30,000	\$169 ⁹⁵	\$139 ⁹⁵
50,000	\$199 ⁹⁵	\$169 ⁹⁵
100,000	\$299 ⁹⁵	\$259 ⁹⁵
150,000	\$369 ⁹⁵	\$319 ⁹⁵

- Hi Capacity Fan
- Flame Out Safety Switch

SEASONS GREETINGS

From All Of Us At Penn Dutch Farm Systems

May your Christmas Day shine as brightly with many joyous moments!

PENN DUTCH FARM SYSTEMS, INC.
1730 Highway 72 North
Lebanon, PA 17042

pipe insurance
freeze protection

FROSTEX II
safer Heating Cable
won't overheat even when overlapped use on any pipe, even plastic

New!
more reliable new design for long life. regulates its own heat output without a thermostat.

cut it to any length
\$1.35 Ft.

WE UPS ANYWHERE - JUST CALL 717-464-3321
SALE PRICES GOOD THROUGH JANUARY 2

E.M. HERR FARM & HOME SUPPLY
R.D. 1, Rte. 272 South, Herrville Rd.
Willow Street, Pa.
Phone: (717) 464-3321

Store Hours
Mon.-Thurs. 7:30 A.M. - 6:00 P.M.
Sat. 7:30 A.M. - 5:00 P.M.
Fri. 7:30-9:00

SNOJAX

PREVENT SNOWSLIDES! AVOID COSTLY DAMAGE!

SEND \$2 FOR SAMPLE

- INVISIBLE
- INEXPENSIVE
- NO ROOF STAINS
- EASILY INSTALLED

SNOJAX 1500 STATE STREET, CAMP HILL, PA 17011
* PHONE (717) 761-1863