VegNet Vol. 8, No.14, May 23, 2001

Registration Granted to ACTARA and PLATINUM Insecticides

C. Welty

Syngenta Crop Protection Inc. (formerly Novartis) announced on 18 May that the Environmental Protection Agency granted registration to several thiamethoxam insecticide products, including Actara and Platinum. These registrations mark the first approval of thiamethoxam for foliar and soil usage in crops. The EPA Previously granted registration to Adage seed treatment, which contains thiamethoxam.

Actara 25WG has been registered as a foliar insecticide for use in cucurbits, fruiting vegetables (tomato, pepper, eggplant), pome fruit, potatoes, and tobacco. Platinum 2SC has been registered as a soil insecticide for use in cucurbits, fruiting vegetables, potatoes, and tobacco. The seed treatment Adage 5FS remains limited to use on wheat, barley, sorghum, and cotton. Thiamethoxam controls aphids, whiteflies, Colorado potato beetle, flea beetles, potato leafhopper, thrips, and tarnished plant bug. In our Ohio tomato insecticide trial last summer, Actara provided excellent control of stink bug. In our Ohio pumpkin trial this summer, we will be testing Platinum for cucumber beetle control.

Thiamethoxam is a neonicotinoid insecticide (similar to imidacloprid, as found in Admire, Provado, and Gaucho) that offers superior control of a broad range of insects at low usage rates. It has an excellent safety profile and has been classified by EPA as an "organophosphate alternative." When Actara is applied as a foliar insecticide, it has rapid translaminar penetration into plant surfaces thus it is locally systemic. When Platinum is applied as a soil insecticide, it has rapid root uptake and is highly systemic within plants.

Cuke and Flea Beetles

R. Precheur

We are getting scattered reports of heavy cucumber beetle feeding on vine crops and flea beetle activity on corn and other vegetables. Growers should scout their fields ASAP to see if theses pests have moved onto your crops (RJP)

Crop Reports

Brad Bergefurd and Thom Harker

SOUTHWESTERN OHIO
9 days ago May 14, growers in the area were heavily irrigating strawberries, melons, green beans etc. and were slowing down planting efforts because things were getting to dry. What a difference one week makes. Most Southern Ohio growing areas have received anywhere from 3.5 inches to 9 .5 inches of rain in the last 8 days. Field ditches have been being dug by hand and backhoe in attempts to get standing water out of usually well drained fields. Field work with equipment has been stopped or slowed down.

One grower has hand planted 5 acres of melons and watermelons. Melon Transplants that have not been treated with insecticide as a drench or transplant treatment are being severely damaged by striped cucumber beetles. Strawberry harvest is in full swing and harvest has been muddy. Newly emerged green bean plantings are showing some signs of possible phytopthora blight with saturated soil conditions and standing water in fields. Fresh market pepper planting began in full swing May 10 -14 but has been stopped, with growers trenching water from these newly planted fields. Some sweet corn fields have been severely damaged by cutworm injury and grubs are beginning to heavily feed on some corn plants, growers have been unable to apply insecticide however due to saturated field conditions. Some growers who have pumpkin contracts for Labor Day delivery are concerned if they can't get fields planted in the next 7 to 10 days they may not be ready to harvest for Labor day sales.

Pepper plants for processing acreage arrived from Georgia and were picked up by growers at the Beaver Ohio Moody Dunbar receiving station May 16 through May 20. Growers that had laid plastic prior to the rains were able to sneak into fields with tractors and water wheel planters on Sunday afternoon May13 and were able to get some of the peppers transplanted. Other growers are holding transplants waiting for fields to dry. Melon, watermelon, tomato, squash and cucumber translants scheduled to go to the fields last week and this week are becoming to large and overgrown and may be dumped. Growers are talking having to replant summer squash and cucumbers that have been direct seeded to the field before the rains.

Harvest of strawberries, kale and collard greens, cucumber, grean beans, lettuce and greenhouse grown tomatoes has begun with wholesale prices at the Bainbridge Wholesale Produce Auction in Bainbridge Ohio above average for quality product with good demand for product.

BAINBRIDGE WHOLESALE PRODUCE AUCTION UP AND RUNNING

The Bainbridge Wholesale Produce Auction located on Route 41between U.S. Route 50 and Route 32 just outside of Bainbridge Ohio is in full swing. Weekly Auctions have been conducted at the Auction facility for one month with a good supply of flowers, hanging baskets, planters, greenhouse grown tomatoes, greenhouse grown green beans, cucumbers, lettuce and other early season produce. Auctions are held every Friday beginning at 4 pm.

Any questions regarding buying or selling at the Bainbridge Produce Auction please contact Brad Bergefurd, Horticulture Extension Agent, 1-800-860-7232 or e mail bergefurd.1@osu.edu.

MOTH PHEROMONE TRAP REPORTS (5/16 to 5/23)

C. Welty

black cutworm, pheromone trap
Huron County (Celeryville): 5 (down from 37 last week)
Wood County (Hoytville): 1 (down from 8 last week)

variegated cutworm, pheromone trap
Huron County (Celeryville): 11 (down from 15 last week)
Wood County (Hoytville): 15 (up from 9 last week)

true armyworm, pheromone trap
Wood County (Hoytville): 175 (up from 34 last week)

fall armyworm, pheromone trap
Franklin County (Columbus): 0 (same as last week)

corn earworm, pheromone trap
Franklin County (Columbus): 0 (same as last week)

European corn borer, pheromone trap,
Franklin County (Columbus): 4 (up from 0 last week)

European corn borer, blacklight trap
Franklin County (Columbus): 4 (up from 0 last week)
Sandusky County (Fremont): 20

Note: full season trap records are posted at: http://www.ag.ohio-state.edu/~ipm/traps/traps.htm

A link is provided from the VegNet homepage, just click on the Vegetable IPM button.

The Tuber Times
Potato Growing Tips and News from the World of Research
Volume 2 Number 1, May 2001

prepared by Matt Kleinhenz

Early to Mid-Season Potato Cultural and Nutrient Management Tips

Determinate potato plants and tubers go through five major developmental phases: sprout development, vegetative growth, tuber initiation, tuber development, and plant senescence and tuber maturation. Conditions during vegetative growth (stage 2) and tuber initiation (stage 3) can have a large impact on crop yield and quality. This publication focuses on two practices, hilling and after planting nitrogen application, often carried out during these stages and that influence the bottom line.

Potato Plant and Tuber Biology are important in Crop Management

Potato tubers are the enlarged tips of stolons which arise from vegetative stems of potato plants. Stolons which give rise to potentially marketable tubers form only between the seed piece or tuber and the soil surface. Therefore, like some refer to the Kentucky Derby as the "richest two minutes in sports," we can think of the short distance between a seed piece or tuber and the soil surface as the "profit zone."

A number of factors make it important to manage the "profit zone" carefully. For example, the first stolons develop close to the seed piece and subsequent stolons arise from the stem at points progressively closer to the soil surface. It is also important to keep in mind that stolon length varies within and among varieties. Researchers at the University of Wisconsin-Madison measured stolon lengths of less than one to more than ten inches in eight varieties. Stolon length, while influenced by environmental factors, seems to be under partial genetical control but is unrelated to tuber color or maturity. In addition, potato plants contain four types of roots, three of which may be directly impacted by the condition of the hill. Roots on a potato plant form at the base (main or basal roots), at the junction of the main stem and stolon (stem-stolon junction roots), and from the stolon and tuber. Past studies documented that water taken up by the main roots bypasses the tubers on its way to the foliage. However, water taken up by the junction, and even more so by the stolon and tuber, roots goes primarily to the tubers. Overall, the quantity of water delivered to tubers by these three types of secondary roots may be small. But, it can be a primary carrier for calcium and possibly other soil-applied compounds targeted for delivery to tubers. High levels of calcium, for example, are reported to reduce the potential for internal quality defects such as brown center and hollow heart. Finally, marketable yield is reduced by sunburning or greening which results from inadequate soil coverage. Rainfall, irrigation, or soil disturbance after planting can breakdown the hill. Therefore, while 3-5 inches of soil coverage over the seed may be sufficient at planting, several more inches of coverage in place by the end of tuber initiation (stage 3) are required to maximize marketable yield. Although hill shape and dimensions should be tailored to match soil, market, equipment, row spacing, and other factors, peaked or conical hills are undesirable. Hills with an approximately 14-16 inch wide base and a flat or gently rounded top are best.

Potato plants and tubers follow a characteristic sequence of developmental stages and they contain a specific arrangement of roots, stolons, and tubers. Potato plants also tend to take-up nutrients in amounts specific to their developmental stage. Of course, a key to successful nutrient management is to match crop need with supply. Fortunately, potato growers have several means to gauge crop need and supply nutrients. For the moment, let's focus on assessing crop nitrogen (N) status after planting.

Experienced growers recognize that the appearance or color of the crop is an unreliable indicator of its nitrogen status. In fact, when it comes to nitrogen deficiency, it is often too late to reverse its impact on yield or quality once it becomes noticeable as stunted or yellow plants. Likewise, the negative impacts of excess N are mostly irreversible. This, coupled with the fact that pre-plant nitrogen can be lost if soil moisture remains high after planting, makes it important that crop managers estimate crop nitrogen status using proven methods, in addition to their experience.

Petiole sap and tissue nitrate tests were developed to assist in the management of N availability in season. Both methods require sampling of fully developed leaves (usually the fourth or fifth from the top) and calibration of standard values for local production conditions. Petiole sap nitrate tests are rapid and inexpensive while laboratory- based tissue tests often involve more time and expense. However, tissue tests usually report the levels of up to twelve macro- and micronutrients while in-field sap tests are specific to one ion/nutrient (e.g., nitrate-N). Regardless of method (in-field measurement of sap, lab measure of tissue), results from these measures are compared with research-based reference readings available in several Extension publications. For example, North Dakota State University reports that ideal petiole sap nitrate levels are approximately 1250-1800 ppm early in tuber formation, 1000- 1400 ppm midway through tuber development, and 500-800 ppm late in tuber bulking. Values at the same stages for dry tissue tests would approximate 17000-24000, 12500-17500, and 7500-10000, respectively. Measured values falling below reference values may indicate that the crop is nitrogen deficient. If needed, additional N can be applied by side- dressing during cultivation and hilling operations, through the irrigation system, or, in limited cases, via foliar sprays. In any case, the goal is to maintain a sufficient (but not excess!) supply of N as going too light or heavy has drastic consequences on yield and quality. The same is true of wide fluctuations in N supply.

The crop's total N requirement is specific to cropping history, soil type, market, variety and maturity, weather, and other factors. Regardless of the total amount to be applied, split applications - applying a portion pre-plant and the remainder after emergence and, possibly, through tuber bulking - of N are recommended. A rule of thumb is to apply one-half to two-thirds at planting with the remainder applied at and after emergence. Applications made after planting can be adjusted according to prevailing conditions using methods described above. Caution should be used in applying N after hilling as excess N late in the season can delay maturity, reduce tuber quality, and contribute to environmental contamination. In some areas farming non- irrigated, fine-textured soils, one-third to one-half of the total N is applied in one post-planting application at hilling. In other areas farming irrigated, coarse-textured soils, one-half to two-thirds of the N is applied in several applications after planting through a combination of sidedressing and injection into the irrigation water (fertigation or chemigation).

Research News

Family, friends, and colleagues regret the untimely and unfortunate passing on May 5, 2001 of Dr. Alvin F. Reeves, potato breeder with University of Maine. Many are familiar with Al's numerous contributions to the world of tomato and potato breeding and genetics. Al led the charge in the

development and release of a number of varieties which continue to benefit many industries. On a personal note, I remember well the strong interest that people took in Al's display of new and promising selections at the University of Maine Cooperative Extension Annual Potato Conference. And, I appreciate Al's willingness to collaborate on projects under development in Ohio. Al's intelligence, wit, and dedication made him a valued colleague and friend to many. Al will be remembered and missed.

References used in Development of this Publication

Agri-Growth, Inc. 1997. Basics of crop production, understanding the potato plant, Level 1. Figure 1, illustration of potato plant growth stages.

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Kratzke, M.G. and J. P. Palta. 1985. Evidence for the existence of functional roots on potato tubers and stolons: Significance in water transport to the tuber. Am Potato J 62:227-236. Figure 2, four types of roots on a potato plant.

Kratzke, M.G. and J. P. Palta. 1986. Calcium accumulation in potato tubers: role of the basal roots. HortSci 21(4):1022- 1024.

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Scherer, T.F., D. Franzen, J. Lorenzen, A. Lamey, D. Aakre, and D.A. Preston. 1999. Growing irrigated potatoes. North Dakota State University, NDSU Extension Service AE-1040. Figure 3, reference petiole nitrate levels for irrigated potatoes in North Dakota.

Previous Issues of this Newsletter:

Factors to Consider when Sidedressing, volume 1 number 1, June 2000

Potato Storage Management Tips, volume 1 number 2, November 2000

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This newsletter will be available on the internet at http://www.oardc.ohio-state.edu/kleinhenz/

What's New At The VegNet Web Site

- **Sweet Corn Tour and Workshop**
June 19, 4-8 PM
Click Here for more information!

- **Online Edition of the 2001 Ohio Vegetable Production Guide - Now Available**

- **Sweet Corn Disease Resistance Ratings**

  The following are summarized lists of Dr. Pataky's work at the Univ. of IL on disease reactions of sweet corn. In these summaries, all experimental and processing varieties have been removed and only named varieties which were rated for common rust or MDM are included. The first list are those named varieties rated for common rust. The second list are only those named varieties rated for Maize Dwarf Mosaic virus (MDM).For a complete report, E-mail: Bob Precheur: precheur.1@osu.edu

  Common Rust of Sweet Corn
  MDM of Sweet Corn

- **Do You Know Us?**

  Find out what we've been up to. The OSU Vegetable Team Report is available in PDF file format for downloading from the VegNet homepage.

- **Sources of Pheromone Traps Used in Vegetable Pest Management.**

  Do you need to find traps, lures or suppliers, click on the Vegetable IPM button on the left side of the homepage, then click on the 'Sources' document in the Vegetable IPM section.

- **IR-4 News**

Also in the Vegetable IPM section, you can link to the IR-4 website. Read the results of the 2000 food use workshop, monthly and quaterly newsletters. Find out the latest on pesticide registrations for minor crops. Learn about biopesticides plus much more. Click on the Vegetable IPM button on the VegNet homepage and then click on the IR4 link in the Vegetable IPM section.

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We appreciate very much the financial support for thisseries of vegetable reports which we have received from the board of growers responsible for the Ohio Vegetable and Small Fruit research and Development Program. This is an example of use of Funds from the "Assessment Program".