

POTATO EYES



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BLIGHT CONTROL and APHID POPULATION

Many of you read or know of the article, "Late blight fungicides have an impact on aphid control" by Ted Radcliffe and Dave Ragsdale (Univ. Minnesota), in the July 1996 issue of Valley Potato Grower. It reports on research done in the mid 1980s observing green peach aphid (GPA) population increased after the application of several blight fungicides. This information is very important to management especially in seed and chip production and it is related to the discussion above. The key points of the article are:

Some fungicides used against blight also suppress certain fungi which parasitize and kill aphids. Therefore, their use may disrupt natural control of GPA population and triggering GPA outbreaks.

Recommendation == Use BRAVO; according to Ted Radcliffe (author of the Valley

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ASARCO SULFURIC ACID Section 3 Registration

A number of growers have been interested in using sulfuric acid for vine desiccation. Sulfuric acid has not been registered in this state except for a Section 24c several years ago. As of last fall, Asarco Inc. registered "Asarco Sulfuric Acid Desiccant" in Nebraska. This is 93% sulfuric acid. Apply undiluted product at 17 to 20 gal/acre. Treatment can be repeated five days later. Do not harvest tubers until at least five (5) days after the last application.

Remember this stuff is dangerous and no one should be around it without protective clothing. It is to be applied only by certified applicators or those under direct supervision of a certified applicator.

DITHANE ST

As most of you know, dry rot (*Fusarium* spp.) has been reported to be resistant to Mertect treatment in many states. Mertect has been the only treatment available for treating tubers going into storage against dry rot. There is some relief in sight at least for seed producers. Rohm and Haas has registered a new product, Dithane ST, for treatment against dry rot on seed potatoes going into storage. This product also limits the spread of silver scurf according to Phil Nolte of the University of Idaho. Dithane ST is applied to seed tubers in a low-volume spray as they go into storage just like Mertect 340F application.

Note that Dithane St can't be used on anything but seed tubers and tubers treated with it can't be sold for anything else but seed!

LATE BLIGHT and HARVEST

As vine desiccation of the fall crop is approaching, it's good to review some management points for late blight.

Vine Desiccation == DEAD vines are essential since the late blight fungus needs living tissue. Spores can fall off the vine to the ground and infect tubers while still in the ground. Tubers can be infected during harvest by contacting infected living vines. Diquat is recommended and the addition of copper sulfate would aid in the killing of spores. Don't use ammonium sulfate since that will cause regrowth. Flaming and sulfuric acid would kill the vines faster and will reduce exposed spores

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Green Peach Aphid Plus Colorado Potato Beetle Control

Leafroll coming from seedlots has been observed in several fields. Although infected plants are being rogued, there may be a few missed in the field which can be a viral source for aphids to spread leafroll to other plants. The key vector for transmission is the green peach aphid (GPA) which once picks up the leafroll virus (PLRV) can infect plants over and over again until it dies. Leafroll spread is within a field; infection by infected, winged GPA coming from outside a field has a minor role in PLRV spread. The GPA historically comes into western Nebraska in August. GPA does not overwinter well in Nebraska due to the cold. (GPA overwinters in trees of the *Prunus* family such as choke cherry, sand cherry and wild plum.)

Many of the fields with leafroll also have some Colorado potato beetles (CPB). Several growers asked me what they can use to control both insect pests. The following are products labelled for both GPA and CPB control as foliar treatments. Note that the use of these insecticides will also kill beneficial, predatory insects such as ladybugs (a subject for a later issue). Note also that several states have reported GPA and CPB resistance to several insecticides.

Monitor 4 (Bayer or Valent)

BEST for GPA; may have preventative action as well as curative; not that good on CPB; will tank mix with Bravo Zn (still effective) but check with "jar test" (described further down) with water you will be using.

Application: 1½ to 2 pt/acre; air @ 3-10 gpa, ground @ 25-125 gpa, chemigation in 1/8 to 1/4 inches water – re-entry interval = 72 hours in areas with less than 25 inches of annual rainfall – pre-harvest interval = 14 days.

For seed-growing fields where leaf roll is a potential problem, this is what I recommend even though there'll be less CPB control than other treatments.

Thiodan 3EC (FMC)

OK on GPA and CPB; apply at feeding; also available pre-mixed with methyl-parathion which is highly poisonous.

Application: 1 to 2 lb/acre; air @ minimum of 1 gpa, ground @ minimum of 10 gpa, no chemigation – pre-harvest interval = 1 day.

Vydate L (DuPont)

Best of the three for CPB control but not as good on GPA as Monitor; apply at feeding; restricted due to ground water contamination (leaches readily).

Application: 1 to 4 pt/acre; air @ minimum of 4 gpa, chemigation under supplemental label and is restricted due to ground water advisory – pre-harvest interval = 7 days.

Others

Provado (Bayer) – new insecticide in testing; not labelled in Nebraska yet.

Ambush, Asana and Pounce are labelled for potato aphid but NOT for green peach aphid; they are also not very effective against either.

For those who are not interested in controlling CPB but are interested only in GPA control, there are other insecticides that can be used. These are Cygon, Cythion, Lannate, and Metasystox.

Mixing with Bravo

Several growers asked whether Monitor for GPA control can be tank mixed with Bravo Zn for blight control and aerially applied, getting two for one application so to speak. The answer is YES according to Ted Radcliffe of the University of Minnesota. Both maintain their efficacy and are compatible. But, compatibility needs to be checked with the "jar test" using the water in which the two products will be mixed since the water's properties such as hardness and pH may affect compatibility.

"jar test" – The following describes how I do the jar test.

Green Peach Aphid Plus Colorado Potato Beetle Control, continued

Example == aerial application in 5 gal/acre (minimum for Bravo Zn), adding 2 pt Monitor 4/acre and 2 pt Bravo Zn/acre:

Get a quart jar (see-through); add 20 fluid ounces of the water which you will use. To this add 1 ounce (2 tablespoons) of Monitor 4 and 1 ounce (2 tablespoons) of Bravo Zn. Mix and let stand under the temperature they will be applied for awhile (1 hour to 1 day). Look for any settling out; you may use a strainer to run the material through and see if there's any residue. If there is, then, they aren't compatible with that water such as due to its hardness.

Fall Frost

With vine desiccation of the fall crop about to start, a question that pops up often is how long can the crop be in the ground before it freezes. A moderate freeze is 25 to 28 deg F. It is impossible to predict when a freeze will come from one year to the other; the best that can be hoped for is probability table. These tables indicate the statistical probability that a freeze will occur at a certain place on a certain date. The following table shows the probability of a freeze at several locations in the Nebraska Panhandle. How long you keep a crop in the ground depends on how much risk you wish to take based on the probability table. The earliest recorded frost in the Panhandle was on Sep 6 and latest was Nov 2. Last year, the first frost came on Sep 19; in 1993, it was on Sep 13.

Probability of 28 deg F on or before the specified date in different sites in the Panhandle. (See FROST, page 4.)

Blight Control and Aphid Population

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Potato Grower article), it has no effect on increasing GPA population while the EBDCs (mancozeb, etc.) and Ridomil do. Currently, they are testing the new systemics (Acrobat MZ, Curzate M-8 and Tattoo C).

	GPA population (number/plant)	
fungicide control	moderate GPA density	high GPA density
Bravo *	2-4	2-5
Kocide *	3-5	3-6
Dithane *	5-10	7-11
Ridomil *	40-50	105-110
	90-95	145-155

* Active ingredients are chlorothalonil, copper hydroxide, mancozeb (EBDC), and metalaxyl, respectively.

Late Blight and Harvest

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only. (The spores protected by soil or plant tissue are not expected to be seriously affected.) Note a faster vine kill will not cause the tubers to mature faster such as set skin.

Storage == Tubers have to be graded for late blight. Remember at the Seed Seminar in Rapid City, SD, late blight can pass from tuber to tuber in storage. Avoid bruising or wounding tubers since these are entry points for late blight as well as several other diseases. If late blight is suspected, cool storage to 38 F and keep relative humidity to 85%.

Culls == Cull piles are the principle source of late blight outbreaks in the following year. Keep culls far away from the next year's potato fields. Remember late blight (A1 and A2) needs living tissue to survive the winter. The best methods for dealing with cull piles are: Bury culls deep enough so that sprouts can not emerge. Chop the culls (discing over them is good) in the fall and let our cold winter freeze them which means also don't let the piles be too high and not freeze all the way through. Making composite from cull piles is not the best method to handle culls. Late blight outbreaks have occurred near composited cull piles. The ideal would be to chop, freeze and bury.

Other hosts == Nightshades are also hosts for late blight. When desiccating a potato field, kill any nightshade even along the perimeter, road or fences. The other host is tomato. Check with the county extension agent on any blight reported in home gardens. If so, these tomato plants must also be destroyed.

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Fall Frost Probability

Site	1 year in 4	2 years in 4	3 years in 4
Alliance	Sep. 26-27	Oct. 6-7	Oct. 15-16
Bridgeport	Sep. 23-24	Oct. 3-4	Oct. 8-9
Harrison	Sep. 19-20	Sep. 26-27	Oct. 5-6
Kimball	Sep. 26-27	Oct. 4-5	Oct. 11-12
Mitchell	Sep. 26-27	Oct. 6-7	Oct. 15-16



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