NEWSLETTER CONTINUES

Welcome to Volume XI of the Wisconsin Cranberry Crop Management Newsletter. We hope you will get the newsletter in a timely basis and that the information it contains is useful to you.

The Wisconsin Cranberry Board, Ocean Spray Cranberries and Cliffstar generously supply funding for the newsletter. This allows the letter to be mailed to all known cranberry marshes in Wisconsin at no direct cost.

Our target audience is the marsh managers; the people who make daily decisions about what will be done on individual properties. We will send only one copy per marsh to keep our mailing and duplications costs within our budget. If more people in your operation need to see the newsletter please make copies or circulate it.

Many people work hard to make this newsletter a success. We hope you find it informative and worthwhile reading. Please contact me or one of the contributors with ideas, suggestions, questions or to update our mailing list.

Teryl R. Roper
UW-Madison, Dept. of Horticulture

ORBIT SECTION 18 APPROVED

The EPA has approved a Section 18 Exemption (97-WI-01) for use of propiconazole (Orbit® EPA Reg. No. 100-702) to control cottonball (*Monilinia oxycocci*) of cranberry. In this newsletter is a copy of the emergency label which you will need in order to use Orbit. *(See page 5)* Last year's label won't do; you need to have the 1997 label.

The use pattern is similar to last year's Section 18 and is as follows:

- Rate: 4-6 oz/acre in 20-50 gallons of water for ground application or in 5 gallons for aerial application. Chemigation is not permitted.
- A maximum of 4 applications per season are permitted: first at budbreak (shoots ½-1½ inches long); second 7-10 days later; third at early bloom (10-25% of flowers open); fourth 7-10 days later. The final spray may be applied no later than 45 days before harvest—45-day PHI.
- After July 31 you will receive a form on which you ***must*** report your use of Orbit. This is required to ensure future registration.
- Take precautions to avoid introduction of Orbit-laden sediments into aquatic habitats. Avoid spray drift and runoff.
- Do not use before April 14 or after July 31, 1997.
- Check with your handler for any additional instructions and use restrictions, especially pertaining to export fruit.

Note that the interval this year is 7-10 days between the first and second, and between the third and fourth applications. Last year it was 7-14 days. Based on cottonball research and performance of sterol inhibitor fungicides on other crops, 9 or 10 days is probably best. Chances are looking pretty good for a regular registration for Orbit in the 1998 season. If you have questions regarding use of Orbit, contact Patty McManus at the UW-Madison Department of Plant Pathology (608-265-2047; psm@plantpath.wisc.edu)

Patty McManus
UW-Madison, Dept. of Plant Pathology

CALIBRATING BOOM APPLICATORS

Proper calibration of pesticide application equipment is essential not only for the performance of the equipment but also for insuring the most good for the crop. While manufacturers go to great lengths to insure the effectiveness of their equipment, there are numerous other factors that can affect the output of your equipment. The type of equipment, field terrain, wind speed, and width of boom are factors that can affect the output. As an applicator, you must consider at least these factors that can affect the output of your equipment as you prepare to make a fertilizer or pesticide application with a boom.

SOURCES OF VARIATION

The type of product, rate per acre, moisture or humidity, and uniformity of the granule also affect the pattern and distribution of the product being applied.

Speed of travel affects total output as much as accuracy of application. It is important with all pesticide application equipment that is calibrated at a given speed to be operated at that speed. Increasing speed beyond the calibration speed will reduce the application per unit area while slowing down will increase the amount of product applied. Speed of travel is one of the most important factors to total output.

The **level of the boom** probably does more to affect the pattern of distribution than any other factors. If the end of the boom is allowed to bounce up and down while drawn across the bed, the distribution pattern at each output location will change continuously. Raising the boom applies the output over a larger, intended swath resulting in lower application rates, while dropping the boom down narrows the pattern and increases the application to that area. A narrow strip can result in areas of excessive product alongside strips of little or no product. This problem often relates to the pattern of stripes or blotches seen on some beds. Front to back sway of the boom can also lead to uneven application.

Field terrain affects output usually by altering the consistency of travel across the bed. Dew, rain, or wet conditions, as well as soft dikes will result in changes of speed and maneuvering of the boom equipment. Dikes that are uneven with tufts of grass or potholes will cause the boom to sway and result in uneven application. Any variation unfortunately will result in different output patterns being applied.

The **distance to the nozzle** can change the **airflow** through the lines. The longer the boom, the greater the concern that all nozzles are outputting identical quantities. As lines get longer, the velocity or speed of the particle may decrease, affecting not only the accuracy of output but possibly the distribution pattern as well.

The **spreader pan** is responsible for the distribution of the product onto the bed in some systematic pattern. The distance between the spreader pans, or the spacing, and the correctness of the angle to the drop line will determine how even a coverage occurs. If the **spacing** varies by several inches due to a design problem or if the pan itself is not perpendicular to the end of the drop tube, uneven output occurs. Any variation in the angle of the pan will be multiplied greatly in the pattern of the product as it's applied to the bed. This can result in overlap, missed strips, or a very uneven application.

Moisture content or humidity can have a serious affect on the flow of particles through the line and the pattern of application when the granules hit the spreader pan. While it's important to keep product dry at all times, some products actually absorb moisture from the environment, resulting in inconstant application rates from one day to the next. Storing products in a dry warehouse will maintain product quality over time.

Granule or prill size and particle distribution not only affects how product moves through the distribution tubes but also how even it spreads as it hits the spreader pan. Large granules tend to travel further while small or dust particles drop sooner or can be drifted by cross winds. An uneven distribution pattern is the result. Blended fertilizer grades made up of several nutrient sources will vary far more than

single nutrient materials like urea or ammonium sulfate in their pattern of distribution.

While it may not be possible in a given day to control all these factors, being able to regulate as many as possible will insure a more accurate application of the product you are applying.

CALIBRATION PROCEDURE

When calibrating boom application equipment, two major concerns need to be addressed. We are concerned not only about the total output on a per-acre basis, but we must also be concerned with the pattern of distribution. More opportunity for error exists in the area of pattern distribution. We can be confident we applied the given amount of product on a bed only to find out that parts of the bed were overapplied while other areas received nothing. Proper equipment calibration will help to insure an even application throughout the entire bed area.

Calibration is simply knowing the amount of product that will be spread uniformly over the unit of land area. Calibrating consists of two steps: determining the area covered per time (time to travel a distance x boom width) and determining the product discharged from the boom per time. When these two steps are combined the time factor drops out and we are left with product applied per land area.

PERFORMING THE PRECALIBRATION TEST:

1. Check manufacturer's manuals for the specifics on adjustments to your boom. Use suggested setting data as a starting point.
2. Determine the distance of bed you wish to cover, to establish the calibration area (example: 100'-200').
3. Determine the boom width and effective area covered by that length of boom.
4. With your boom in motion, record the time required to travel the predetermined distance of bed used to calibrate the boom.

You should now know the length times the width of the area covered and the time it took for your equipment to cover the test area.

Relocate your equipment to a suitable location to complete the calibration test.

STEPS TO CALIBRATION TEST:

1. With the equipment operating correctly, fill hoppers or reservoir with product intended to be applied. Proceed to fill all lines with product.
2. Place a collection bag or container over each nozzle on the boom and secure, to ensure all product will be collected. Number each container to represent the nozzle being collected.
3. Proceed to run the boom applicator for the amount of time you determined in the precalibration test and shut off the equipment, allowing all residues to be deposited in the collection container.
4. Gather up the collection containers and weigh each separately to determine individual nozzle output. There should be no more than a plus or minus 5% variation between the output of the nozzles.
5. Weigh the total output of all nozzles and determine the amount in ounces or pounds.
6. Calculate the area covered in the precalibration test and convert to square footage or percent of an acre.

The application area is:
Acres covered = width of boom x field length covered = % acre
43, 560 sq. ft. in acre

The application rate is:
Rate per acre = volume material applied (lbs. or oz.)
Sq. ft. or % acre covered

Examples: You have a 40' boom and your test area is 220'.

40' boom x 220' travel = 8,800 sq. ft. or .20 acre.

Problem 1. A granular herbicide is recommended at an effective rate of 25 to 30 lbs. per acre.

In your calibration test, you collected a total of 88 ounces or 5.5 lbs. of material in 1/5 of an acre. 5.5 lbs. x 5 = 27.5 lbs. per acre. This

amount is within the 25 to 30 lbs. recommended rate for the product.

Problem 2. You have a fertilizer recommendation for a broadcast rate of 150 lbs. per acre. With your 40' boom, you traveled 180' or 7,200 sq. ft., which is approximately 16.5 or 1/6 of an acre.

In your calibration test, you collected 21 lbs. of material. Applied to 1/6 of an acre. 21 lbs. x 6 = 126 lbs. applied per acre, which represents 85% of the recommended rate. You should readjust the equipment to increase your output 10 to 15%.

Problem 3. You wish to apply an ammonium sulfate (22-0-0) application at the rate of 15 lbs. of nitrogen per acre. Approximately 4.5 lbs. of 22-0-0 are required to apply 1 lb. of nitrogen per acre. A rate of 15 lbs. of nitrogen would require an application of 15 x 4.5 or 67.5 lbs. of product. (Your 40' boom covered 220' or 1/5 acre.)

In your calibration test, you collected 16.5 lbs. of product. 16.5 x 5 = 82.5 lbs. per acre , 4.5 = 18.3 lbs. nitrogen being applied per acre. This rate is 22% greater than your desire and you should readjust and calibrate again, to insure a satisfactory output to your crop.

CONCLUSION

Remember, that once you have completed a precalibration check, all you need to record are the times required to cover the test area in minutes/seconds. Then you can calibrate any product change based on these times.

Not only will these efforts ensure an accurate application of product but also allow you better control over your crop. Overapplication of product can reduce crop yield as well just as an underapplication can. Protecting your crop, yourself, and the environment around you are all benefits of proper equipment calibration.

Tod D. Planer
UW-Extension, Wood County

People are beginning to see that the first requisite to success in life is to be a good animal..

Herbert Spencer

IPM AND REDWOOD TREES

Have you ever looked at the redwood trees in California? These trees are a sight to behold! Towering as much as three hundred feet in the air, one would think that the root system must be very deep. I have read that the redwoods have a very shallow root system. What is most interesting is that the roots spread out in all directions, and as a result, all the roots of the trees in a redwood grove are intertwined. They are locked together so that when the wind blows or a storm strikes all the trees support and sustain one another. That is why you almost never see a redwood tree standing alone.

Now let's look at integrated pest management in cranberry in the same fashion. We must never stand alone when it comes to our specialty crop. Rules are to be be abided by all. Labels are written for specific reasons, PHI (preharvest intervals) and REI (re-entry intervals) are the law.

The Lady Bug team travels to several different counties and we have yet to find one marsh that is exactly like another. Each location has its very own strengths and weaknesses, each is individual and unique in itself. But when it comes to IPM we must have the same thought process. IPM is all about using pesticides wisely and integrating cultural practices and biological controls along with chemical pesticides. We must unite, allowing our roots to become intertwined, becoming even stronger in our conviction that growing our specialty crop the IPM way is the only way!

Jayne Sojka, Lady Bug IPM

POAST TOLERANCE EXTENDED

The time limited tolerance for Poast herbicide on cranberry has been extended through December 1998. This means Poast herbicide can be used on cranberry during the 1997 growing season.

COMPUTER USER GROUP TO MEET

A computer user group for cranberry growers is being organized. The group will meet on Wednesday May 21 at Tomah Senior High School, Room 213. Anyone who is interested in computer use related to cranberry management is invited to attend.

The purpose of this group is to allow sharing of information regarding the use of computers for assisting in managing cranberry marshes. At the meetings growers can share helpful ideas they have that may also be useful to others. Questions and problems can also be shared and the joint expertise of the group may offer solutions.

The WSCGA Education Committee sponsors the Cranberry Computer user group.

CRANBERRY MINI-CLINICS PLANNED

Fruit mini-clinics for cranberry growers will be held June 10-11. On Thursday June 10 we will meet at Terry Jonjak's Minong Marsh. The clinic will begin at 10:00 am. On June 11 we will begin at 2:00 pm at the Mike Bennett cranberry marsh in Cranmoor.

Terry Jonjak's marsh is east of Minong. Take Highway 77 east of Minong to CTY G. Go north on CTY G 3 miles to Colton Road. Go about 1/2 mile on Colton Road to the marsh, which is on the north (left) side. The Bennett marsh is 9 miles west of Port Edwards on Hwy 54. (North of Gaynor marsh).

Mini-clinics are informal gatherings where Dan Mahr, Patty McManus and Teryl Roper give short presentations about current topics and the balance of the time is spent with questions, answers and discussion. Please attend the session in your area.