

# ONTARIO PROCESSING VEGETABLE GROWERS

## RESEARCH SUMMARY RESULTS

### THE DEVELOPMENT OF PEST MANAGEMENT STRATEGIES FOR INSECTS AND PLANT DISEASES IN PROCESSING VEGETABLES - 2001.

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#### **BROCCOLI**

##### **BLACK ROT CONTROL IN COLE CROPS USING SAR PRODUCTS**

Four days after the broccoli seedlings were sprayed with the treatments, the plants showed smaller leaf appearances with the paclobutrazol treatments. The foliage 10 days after treatment of Actigard turned slightly yellow, while the non treated control seedlings began to grow spindly while all of the other treatments were greener and sturdier with shortened plant heights. The treatments containing Alexin and Acadian with paclobutrazol looked the healthiest with the greatest plant vigour. Paclobutrazol controlled the height of seedling and transplant broccoli plants both in the greenhouse and in the field. The addition of Alexin to paclobutrazol improved the root fresh wts at the seedling stage while improving the plant vigour and plant height ratings throughout the summer. Actigard 50WG resulted in a slight phytotoxic effect reducing the seedling root fresh weight however this early negative effect was short lived with improved broccoli yields compared to the control. At the time of transplanting the combination of Paclobutrazol + Actigard 50WG were the shortest in plant height however the plants recovered quickly once in the field with higher yields by the end of the season compared to the untreated control.

#### **CABBAGE**

##### **CONTROL OF CABBAGE INSECTS**

Only RH-2485 240F + Companion, at the rate of 0.3L product/ha + 0.1%v/v, provided equal control to the very effective commercial insecticide DECIS 5.0EC for the control of cabbage foliar feeding insects. It was noted however there was a lag of several days for RH-2485 240F + Companion to reach the high level of control observed almost immediately with DECIS 5.0EC. Once that control was present it remained throughout the season providing equal insect control to that of DECIS 5.0EC. The addition of the surfactant Companion under this years weather conditions of hot and dry, significantly improved insect control. The higher rate of RH-2485 240F was more effective than the medium and lower rates however not as effective as the medium rate with the addition of the surfactant Companion. Confirm 240F provided good initial control but was less effective than either the higher rate of RH-2485 240F or the medium rate of RH-2485 240F with the surfactant Companion. Although there were significant differences in insect control amongst the various treatments as outline all were significantly better than the non-sprayed control.

##### **CONTROL OF CABBAGE FOLIAR INSECTS USING AGRIBAC Btk MATERIALS**

AGRIBAC 48 LC at the higher application rate of 1500 ml product/ha provided the highest level of foliar insect control in cabbage. This was followed by AGRIBAC 64 ES, AGRIBAC 2X WDG then AGRIBAC 2X WP. All of these Btk materials were equal or better than the standard Bt material DIPEL WP. The level of control in this years trials were less than expected possibly due to the dry, hot and sunny summer.

##### **CONTROL OF CABBAGE INSECTS & DISEASE USING MESSENGER**

Messenger applied to the foliage of cabbage was not able to induce any sort of insect control. Messenger was ineffective in controlling foliar insects in cabbage. The incidence of cabbage foliage disease was low with no ratings recorded.

#### **EFFECT OF ALEXIN ON INSECT & DISEASE IN CABBAGE**

Alexin, when applied to the foliage of cabbage was not able to induce any sort of insect control. Dipel WP was effective in controlling foliar insects in cabbage but the level of insect control was not significantly improved with the addition of Alexin. The incidence of cabbage foliage disease was low with no ratings recorded.

#### **PEPPERS**

##### **RESISTANCE LEVELS TO BACTERIAL SPOT IN PEPPER CULTIVARS**

The range of resistance to bacterial spot in peppers is listed in order from high to low resistance levels found in this year's pepper cultivar test. The number of new pepper cultivars having levels of resistance to bacterial spot is improving. BOYNTON BELL, SPP8124, PR 99 Y-3 and ORION were highly resistant to bacterial spot. They were followed by SPP6112, MASTER 714 and PRESIDENTE which showed moderate levels of spot resistance. BELL KING AND HMX 0644 appeared to be very susceptible to bacterial spot.

##### **RESIDUAL BENEFITS OF A SINGLE YEAR'S APPLICATION OF SOIL AMENDMENTS (COMPOST) IN THE GROWTH AND PRODUCTIVITY OF PEPPERS**

Even after a year, the residual effect of applying spent mushroom compost to soil that was considered in "poor health" showed remarkable advantage in pepper growth and yield. The number of leaves were increased, the plant vigour was even more pronounced this season than in the previous season and the number of fruit produced this year was highly significant. Due to the dry year the fruit numbers did not increase yields as the plot area was severely drought stricken.

#### **SWEET CORN**

##### **CONTROL OF LEAF RUST AND EUROPEAN CORN BORER IN SWEET CORN USING COMBINATIONS OF TILT AND MATADOR**

TILT 250E proved to be an effective rust control fungicide when properly timed as was MATADOR 120EC an effective European corn borer insecticide when properly timed. The weather condition during this trial period was considered extremely dry being not conducive to disease development resulting in the decision to apply the fungicide timed treatments only once on August 7. However greater rust control was observed in treatment 4, when the fungicide TILT 250E was applied twice in late July, 23 and 31 as a combination treatment with MATADOR 120EC and timed for corn borer control. Early applications were apparently needed for effective rust control than perceived. The timing and application of MATADOR 120EC proved very effective for the control of European corn borer. The timing considered necessary for insect control with MATADOR 120Ec proved not only effective for European corn borer control but also proved effective for rust control. If the timing was left up to an application for leaf rust control alone most often, the application of the fungicide would be too late. There were no phytotoxicity effects noted during the season with the tank mix treatments of TILT 250E plus MATADOR 120EC.

##### **CONTROL OF LEAF RUST AND EUROPEAN CORN BORER IN SWEET CORN USING COMBINATIONS OF TILT AND WARRIOR**

TILT 250E showed to be an effective rust control fungicide when properly timed. Due to the dry weather conditions the number of TILT 250E applications considered necessary were only on August 21 and September 4. The results clearly showed however that treatments with 4 applications rather than the 2 prescribed necessary significantly reduced leaf rust to a higher level. Apparently the two earlier sprays on August 13 and 21 increased the level of rust control with TILT 250E. The level of insect control with WARRIOR 122 CS, especially for Corn Earworm control, was lower than expected. There were no phytotoxicity effects noted during the season with the tank mix treatments of TILT 250E plus WARRIOR 122 CS.

##### **CONTROL OF LEAF RUST IN SWEET CORN**

QUADRIS 250SC provided the highest level of sweet corn rust control in this trial. Although both TOPAS 250E and TILT 250E contain the same active ingredient, propiconazole, the disease control ratings suggest that TOPAS 250E proved more effective in reducing the amount of rust disease in sweet corn than TILT 250E. FOLICUR 3.6F did not provide a high level of rust control but it was significantly better than the untreated control and both of the BRAVO formulations. BRAVO 500F and BRAVO ULTREX 82.5 DG was ineffective in controlling leaf rust in sweet corn this season, although both provided a measure of disease control over the untreated control.

**EFFECT OF HEADLINE 250EC FOR THE CONTROL OF LEAF RUST ON SWEET CORN**

HEADLINE 250EC provided higher levels of leaf rust control for a longer period of time than did BRAVO 500F. There was a gradient in leaf rust control as the rate of HEADLINE 250EC was increased with rates of 0.6L product/ha and above proving effective.

**USE OF SEED TREATMENTS FOR THE CONTROL OF THRIPS, FLEA BEETLES AND STEWART'S WILT - RIDGETOWN**

Populations of flea beetles were not noticed until late July and in low numbers. Thus, the resultant infection of Stewart's Wilt were minimal with no differences noted between seed treatments. However early in the season there were considerable numbers of thrips which caused noticeable leaf scaring and assessments were taken as there appeared to be an effect between the seed treatments tested. The addition of MAXIUM XL provided excellent disease control at the seedling stage as the number of total emergence counts on June 14 was substantially higher than the untreated control. Although at the time of assessment, when the numbers of thrips counted were no different amongst the treatments, there was a significant difference in thrips damage ratings. All seed treatments were able to reduce the numbers of thrips feeding scars on sweet corn.

**SQUASH**

**EFFECTIVENESS OF NOVA 40WP FOR THE CONTROL OF POWDERY MILDEW IN SQUASH**

Under severe powdery mildew pressures late in the season, BRAVO 500 provided longer residual disease control than NOVA 40WP. On the earlier September 1 rating, a rate response with NOVA 40WP was observed with the highest rate of 350 g product/ha being most effective. The level of control after the last spray on September 6 showed a higher level of powdery mildew control with BRAVO 500.