

ONTARIO TOMATO RESEARCH INSTITUTE

RESEARCH SUMMARY RESULTS - 2005

THE DEVELOPMENT OF PEST MANAGEMENT STRATEGIES FOR INSECTS AND PLANT DISEASES IN PROCESSING TOMATOES

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FUNGAL AND BACTERIAL DISEASES

REGISTERED FUNGICIDE PROGRAMS FOR THE CONTROL OF FUNGAL DISEASES IN FIELD TOMATOES - 2005

CONCLUSIONS: The most effective treatment in this trial was alternating the fungicides CABRIO 20EG and LANCE 70WG for both foliar and fruit disease control in field tomatoes. This was followed by alternating QUADRI 250EC and BRAVO 500F. CUPROFIX ULTRA 40DF was slightly better in controlling foliage diseases alone or in combination with PENNCOZEB 80W than KOCIDE 2000 and KOCIDE 200 + MANZATE 200DF respectively. The copper based products need to be applied more than 4 applications to achieve a high level of disease control in field tomatoes. TANOS 50DF was not effective in controlling foliar and fruit diseases in field tomatoes under the conditions of this trial.

EFFECTIVENESS OF THE FUNGICIDE TANOS 50 DF IN SUPPRESSING BACTERIAL SPOT IN FIELD TOMATOES - 2005

CONCLUSIONS: Multiple spray applications of TANOS 50DF reduced the number of bacterial spot lesions in field tomatoes. Overall fungal and bacterial control was poorest when TANOS 50DF was applied alone. The use of low rates of KOCIDE 2000, tank mixed with TANOS 50DF provided only a slight improvement, although statistically significant, in the level of foliar disease control in tomatoes. The most effective product applied alone at the recommended rates was KOCIDE 2000. Lowering the rates of KOCIDE 2000 required the addition of MANZATE 200DF to provide high levels of foliar disease control. None of the treatments effectively controlled fruit anthracnose.

COPPER PRODUCTS FOR THE CONTROL OF BACTERIAL SPOT IN FIELD TOMATOES - 2005

CONCLUSIONS: There were a number of very effective products reducing the level of bacterial spot and foliar fungal diseases in field tomatoes. Products such as KOCIDE 2000 alone or adjusted to a pH of 2.0, KOCIDE combination treatments including MANZATE 200DF and CUPROFIX ULTRA applied alone or in combination with PENNCOZEB. Although there was a significant reduction in the number of bacterial spot lesions on the foliage treated with AGRI FOS, the level of control was significantly less than the products previously mentioned above. Single treatments of either KOCIDE 2000 or CUPROFIX ULTRA controlled the disease pressure in this plot equally well as when an additional fungicide was tank mixed

with it. Acidifying KOCIDE 2000 did not improve its level of disease control nor did it adversely affect its control or resulted in any damage to the tomato foliage at that low pH.

THE EFFECT OF AGRI-FOS FOR THE REDUCTION OF TRANSPLANT STRESS AND CONTROL OF BACTERIAL SPOT IN TOMATOES- 2005

CONCLUSIONS: Agri Fos applied one-week prior to transplanting significantly improved the plant vigour by reducing transplant shock. Agri Fos by itself or when applied alone did not control either bacterial nor fungal diseases in this trial. The additional of MANZATE 200DF did not improved the disease control of Agri Fos. The most effective bacterial and fungal disease control treatment was the multiple applications of the standard products KOCIDE 2000 + MANZATE 200DF.

CUPROFIX ULTRA AND AGRO FOS FOR THE CONTROL OF BACTERIAL AND FUNGAL DISEASES IN TOMATOES - 2005

CONCLUSIONS: The copper based products of CUPROFIX ULTRA 40DF and KOCIDE 2000 provided the highest level of overall foliar disease control but were weak in controlling fruit anthracnose. Treatments containing AGRI FOS 400F alone or in combination with MANZATE 200DF were not effective in controlling either of the disease complexes including foliar or fruit diseases. In fact it was very noticeable that in the treatment with only the AGRI FOS 400F product applied the fruits became very soft and mushy.

EVALUATION OF TIMING OF TREATMENTS OF HEADS UP FOR THE CONTROL OF BACTERIAL SPOT IN FIELD TOMATOES - 2005

CONCLUSIONS: The application of HEADS UP prior to transplanting or after transplanting did not control bacterial spot in field tomatoes. A 7-day spray interval of KOCIDE 2000 + MANZATE 200DF effectively controlled bacterial spot as well as the foliar fungal diseases in this trial.

ORGANIC PLANT WASH FOR THE CONTROL OF BACTERIAL SPOT IN TOMATOES - 2005

CONCLUSIONS: Multiple applications of the organic plant wash did not provide any level of bacterial nor fungal disease control in field tomatoes. The commercial standard KOCIDE 2000 was effective.

INSECTS

EVALUATION OF CO-FORMULATIONS OF IMIDICLOPRID AND DELTAMETHRIN FOR THE CONTROL OF INSECTS IN TOMATOES - 2005

CONCLUSIONS: There were high populations of Colorado potato beetles just prior to spraying. All four insecticide treatments including ADMIRE 240F, DECIS 5.0EC, and the two experimental insecticides NTN33893+deltamethrin and AE F106464 were extremely effective in controlling Colorado potato beetles in field tomatoes.

BRIDGING NPE VARIANTS OF MATADOR FOR THE CONTROL OF INSECTS IN TOMATOES - 2005

CONCLUSIONS: The higher rate of Matador regardless of formulation provided higher levels of control of Colorado potato beetles in field tomatoes than the lower rates. There was no significant difference between the Matador variants although at the lower rate, the Matador F 120EC formulation had the highest numerical beetles surviving.

INSECT CONTROL IN PROCESSING TOMATOES USING DPX-E2Y-2005

CONCLUSIONS: The new experimental DPX-E2Y45 insecticide at the rates tested provided outstanding Colorado Potato Beetle (CPB) control in field tomatoes. Control was as good with DPX-E2Y45 as the standard ASSAIL 70WP and as effective and possibly slightly more effective than the other commercial standard MATADOR 120EC.

TOMATO ADDITIVES

EVALUATION OF PHYTOREMEDIATION ORGANISMS ON SEEDLING TOMATOES AND THE RESPONSE IN THE FIELD - 2005

CONCLUSIONS: The UW 3&4 organisms, with one exception, had no effect on the overall rate of seedling emergence, final emergence numbers in the seedling trays nor affected the rate of growth of the transplants measured by transplant height. There was noted however that the UW 3&4 organisms seem to have increased the final establishment of tomato seedlings only when raw seeds were used. The tomato transplant growth, just prior to transplanting, measured by weighing the fresh wts. of the top portion of the plant and roots and then drying them to determine dry weights were not significantly differed whether treated with the PG organisms or not. There was again a slight indication that the two organisms could improve the tomato root fresh weights only in the raw seed when applied as a seed treatment. Field establishment was not improved using these PR organisms either in the greenhouse or using the various treatments at time of transplanting. In fact there was a slight decrease in field establishment when peat moss was used as a carrier of the PR organism and when the PR organisms were used in the transplant water treatments. The seemingly negative effects of the PR organisms in these two treatments may be due to the method of treatment rather than the potential harmful effect of the organisms. The use of peat moss at this late a stage could have added to drying out of the plug in the field adversely affecting the establishment of some of the transplants. Also the method of adding water as a transplant water treatment itself may have be the cause of the decline in transplant numbers in that treatment. This observed delay or poor establishment for these two treatment may have also been the reason why it was only in those two treatments that on August 13 those two treatments showed a foliar difference indicating an improvement in foliar disease control where it may have been the result of a delaying effect with the plants still being more vigorous and able to fend off the field fungal diseases at that time. It does not seem there was any positive disease controlling benefits provided by the use of the two PR organisms. The slight differences in red fruit yields did not indicate any benefits from the use of the PR organism in tomatoes.