1995

ENHANCEMENT OF TOMATO SEEDLING QUALITY BY TRIAZOLE SEED PRIMING AND THE EFFECT ON TOMATO HARVEST YIELD AND QUALITY

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Research at the University of Guelph indicated that seed priming with triazole growth regulators had the potential to protect plants from environmental stress. The **objective** of the 1995 collaborative project was to test and develop this technology with processing tomatoes in commercial field situations and research establishments in souther Ontario, as part of a `research/technology transfer´ program supported by OMAFRA.

Field trials 1995: Seeds of processing tomato cvs. OH7983, Peto2196, H9230, CC390, Peto696 and H9478 were primed with triazole growth regulators at Guelph, seeded in plug trays, seedlings raised in greenhouses at RCAT, Paincourt, Blenheim and Harrow and subsequently transplanted in field experiments at these 4 locations.

RESULTS

Seedling Quality: The seedlings raised from triazole Paclobutrazol primed seeds at RCAT/Paincourt/Blenheim were **shorter/sturdy** (-42%), **thicker stems** (+17%), **greener** (+35%), uniform, and had a higher root/shoot weight ratio (+53%) indicating a **heavier root plug,** as compared to the `check´ seedlings. Field inspections and stand counts after transplanting confirmed the good quality of the established transplants. Following transplanting in the field, the initial differences in canopy heights of the Paclobutrozol primed seedlings (upright canopy) versus `check´ seedlings was gradually reduced over a 4 week period, resulting in slightly taller canopies after 5 weeks.

Harvest Yield: Data from Expt.I averaged over 6 cultivars at 3 locations RCAT/Paincourt/Blenheim, confirmed that **yields** of Paclo primed were **similar** to the `check´ plots. However, data from Expt.II RCAT and Expt.III Harrow, recorded **yield increases** with Paclo ranging from **9-14%** above the `check´. A comparison at Harrow of the Paclo seed priming technique versus a seedling Paclo soil drench technique, favoured the former technique in terms of field yield, at the concentrations tested.

Soluble Solids: Only Expt.I at RCAT was tested. Some enhancement of +15% was evident, but only with cultivars having initial relatively low absolute soluble solid levels.