FRESH VEGETABLE GROWERS OF ONTARIO

Project #9024 Crop Management Research on Crucifer and Low-Acreage Crops

BRIEF DESCRIPTION

Relevant applied research on fresh vegetables is required in Ontario in order to adapt to changing markets and production systems. In order to develop new opportunities for vegetable growers, the proposed research focuses on the interactions between production practices such as fertilization, and quality factors such as pest resistance and vitamin content. The demonstration of a link between production practices and vitamin content could lead to innovative marketing strategies and demonstrate the importance of production practices in research programs on human nutrition. Research will be conducted on several fresh vegetables to determine the effects of fertilization and choice of cultivar on yield, quality, and vitamin content. These trials will include a nitrogen, phosphorus and potassium trial on two broccoli cultivars and nitrogen response trials on sweet potatoes and Asian crucifer crops. Vitamin analysis will focus on vitamin K and lutein; compounds that are important in the prevention of many diseases including macular degeneration, osteoporosis and cancer. Pest management also remains the top priority for all crop groups. Reduced-risk fungicides and foliar fertilizers will be evaluated for control of black leaf spot. (*Alternaria brassicicola)* on cabbage and cauliflower. Pest damage will also be assessed in nitrogen trials at harvest in order to identify potential interactions between fertilization practices and pest pressures.

PROJECT OBJECTIVE

Opitmal fertilization of broccoli through:

Evaluation of the effects of P and K on the N requirements of the crop: treatments will include four rates of N applied at both recommended and high P and K rates, a low N, P, and K
treatment, and split application of N at recommended P and K concentrations.
Evaluation of the N response of two broccoli cultivars
Evaluation of the effects of fertilization on vitamin K and lutein content: samples will be taken from the broccoli trial from low fertilization, recommended fertilization, and high fertilization treatments.
Estimation of N losses from broccoli under different fertilization regimes
Identification of the effects of residual N on broccoli yield and quality in a second planting

Trials that will lead to the establishment of N recommendations for low acreage crops through:

Evaluation of five rates of N on yield on quality for sweet potatoes and continuous production
of Asian vegetables including Shanghai pak choy, edible flowering rape, edible amaranth and
Chinese broccoli
Identification of the effects of residual N from previous plantings and continuous fertilization on
yield and quality in subsequent plantings of Asian Vegetables

Management of black leaf spot on cabbage and cauliflower through:

Evaluation of reduced-risk fungicides and foliar fertilizers including Bravo, Alexin, Switch, Aliette
Pristine and a phosphorous acid product as compared to an untreated control treatment