**Introduction**

Integrated Pest Management (IPM) utilizes all suitable techniques and methods in as compatible a manner as possible to maintain the pest population at levels below those causing economic injury (FAO 1975). Integrated pest management (IPM) thus is a philosophy based on several guiding principles including the use of control options that are environmentally sound, socially acceptable and economically feasible. These principles promote using pest management options in a way that minimizes impact on the environment, increases grower profits, and provides consumers with quality produce. The foundation of IPM is built on information about both the crop and the pest. Information about the crop that is useful typically includes production practices, soil type and pH, and at what growth stages is the plant susceptible to a particular pest infestation. Likewise, information about the pest that is useful in making management decisions includes when the pest is present in relation to the susceptible growth stage of the crop, what stage of the pest is most easily managed, and what pest level causes economic loss.

These pieces of information can be used individually, or in combination to make effective management decisions. For example, in grapes, Harmonia axyridis (multicolored Asian lady beetle) is present in the vineyard throughout the growing season, as indicated by yellow sticky card or visual sampling. However, H. axyridis does not become a pest until grapes reach maturity. In fact, H. axyridis may even be considered beneficial during vegetative growth stages, feeding on other insects that may pose a threat to grape foliage. Because we know that H. axyridis is a pest when grapes are mature, the management, or treatment window is focused on when the grapes are ripe. This allows us to conserve H. axyridis in its beneficial capacity, and minimize the use of insecticides prior to the susceptible growth stage. This is just one example of how IPM can be used to effectively and efficiently manage pests in grapes.

Because factors such as rainfall, temperature, and crop yield, vary from year to year and vineyard to vineyard, pest management carries a certain degree of uncertainty. A primary goal of IPM is to minimize these uncertainties and therefore the risk involved in growing grapes. It is our hope that this grape IPM manual will provide Minnesota grape growers with the tools necessary to be successful in managing pests in their vineyards with minimum inputs.