Positioning is an important part of any site-specific management scheme for agriculture. Many different schemes and systems have been tried with limited success. This paper discusses the different schemes and suggests specifications for what is required from such a system. GPS, differential GPS, inertial, dead-reckoning and a new system called Accutrak are reviewed in regard to their appropriateness to site specific farming.

It is clear that different levels of precision are required for the various components of site specific application. A system that is accurate to 5 meters is probably more than adequate to determine a specific block of land and the rate of application can be determined accordingly. This increase in efficiency, however, is only reasonable if the application is being done with no overlap or missing in which the rate could be double or zero respectively. Such accurate driving would require a much more accurate system in the order of 15 cm.

Taking site specific to the limit requires a site in the vicinity of each plant. The nutrient placement and individual care of each plant is what really counts. To get to this level a system that could achieve accuracies of 1 or 2 cm would be needed. To achieve this a vision system could be used in which the plants themselves become the reference points.

INTRODUCTION

Variable Rate Application Technology (VRAT) or Site-Specific Farming requires real time position information for the application vehicle. There are different aspects to VRAT, that require different degrees of accuracy. Farmers and custom applicators have quickly come to recognize the merits of VRAT; however for those that are contemplating adopting VRAT in their operations there remains the practical questions as to what positioning system should be used? --With what accuracy? --For what cost?