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Precision farming-scope and scenario in small farms

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Abstract : Precision farming is a concept of using the new technologies and collected field information, doing the right thing, in the right place, at the right time. Collected information may be used to more precisely evaluate optimum sowing density, estimate fertilizers and other inputs needs, and to more accurately predict crop yields. Surveys conducted of Southern cotton producers since 2000 indicate continued adoption of precision farming technology and a significant increase in the use of GPS guidance. According to surveys of cotton grower adoption in the 2000, 2004 and 2008 seasons, 63 per cent of farmers who responded are now using some form of precision farming. In India,with installation of drip irrigation system and fertigation (for application of soluble fertilizers) units being essential requirements, farmers could avail a 50 per cent subsidy for the equipment. A farmer could avail a maximum subsidy of Rs.65,000 a hectare, including the cent per cent subsidy of Rs.25,000 for soluble fertilizer. Precision farming on a regional level is one way to apply this approach to small-farm agriculture. It may not only improve farm management, but may also promote the development of rural areas.

Key words : Geographical positioning system(GPS), Variable rate technology, Crop yield

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Precision farming in the context of Indian Agriculture is the precise application of agricultural inputs based on soil, weather and crop requirement to maximize sustainable productivity, quality and profitability. 'Precision farming or precision agriculture' is a concept of using the new technologies and collected field information, doing the right thing, in the right place, at the right time. Collected information may be used to more precisely evaluate optimum sowing density, estimate fertilizers and other inputs needs, and to more accurately predict crop yields. It helps in avoiding unwanted practices to a crop, regardless of local soil/climate conditions, *i.e.*, it reduces labour, water, inputs such as fertilizers, pesticides etc. and assures quality produce.

The term 'precision farming' or 'precision agriculture' is capturing the imagination of many people concerned with the production of food, feed, and fiber. It offers the promise of increasing productivity, while decreasing production costs and minimizing the environmental impact of farming (NRC 1997, SKY-Farm 1999).

Scope of precision farming in other countries:

The mechanization of American agriculture has been ranked as one of the top 10 engineering accomplishments of the past century, right alongside the invention of the computer and putting a man on the moon. Randy Taylor, Extension agricultural engineer at Oklahoma State University, told the general session of the Beltwide Cotton Conferences in New Orleans that electronics and control systems for use in precision agriculture could match in importance such things as the tractor and the rubber agricultural tire, both key elements of the mechanization of agriculture in the last century.Satellite guidance systems for tractors burst upon the American agriculture scene in the 1990s, leading the way to an era of precision agriculture that has quickly matured, with many opportunities ahead, according to Jon Hardwick, Newellton, La., cotton producer, chairman of the National Cotton Council and moderator of the beltwide opening session.

Taylor said adoption of precision agriculture technology allows farmers to manage crops on a smaller or more finite scale without sacrificing the capacity of highly efficient, large equipment. Being able to farm in zones using yield mapping and sensing equipment as part of capabilities of tractor satellite guidance and mapping systems allows farmers to specifically identify differences in fields. Precision agriculture has allowed producers to accurately identify zones and do something about them using maps coupled with computer-generated