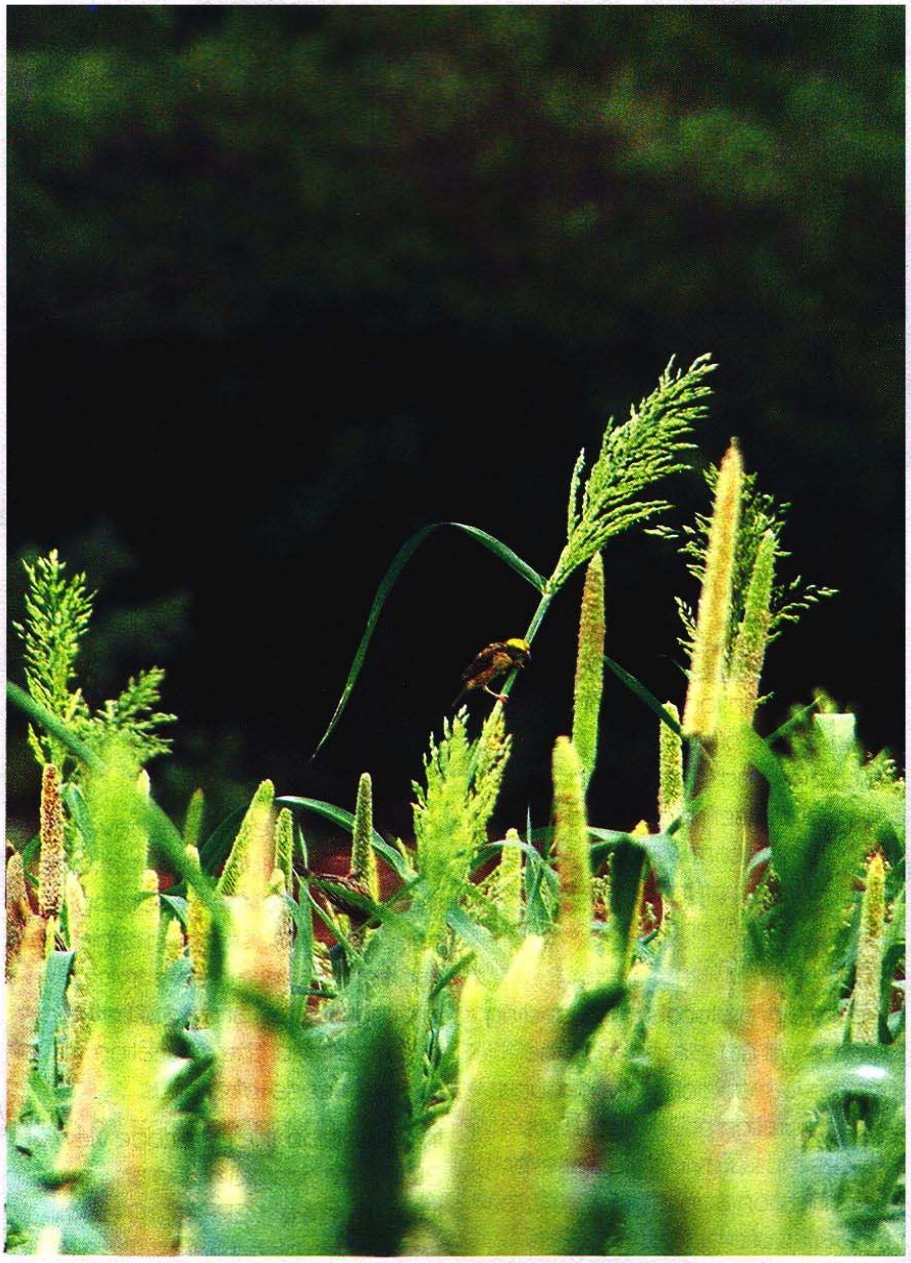
Futuristic Farming – e-Sagu



The year 2015

Yellaiah, an illiterate farmer in Nagireddipalli in Anantapur district, mulls over which crop he should go for this season. To finalize the crop, he walks into an Internet café, contacts the coordinator and posts a query to an agriculture scientist at Hyderabad.

Next morning, the coordinator meets Yellaiah and explains the message received from the scientist with tips on crops, pesticides, water management etc. Then he goes ahead with the farming operations. During the course of this he notices a bleak change in the crop, and contacts a coordinator to help him out.

The coordinator visits his field, enters the relevant data through text-based forms and photographs into the personalized agriculture extension system. When the system produces the advice, the coordinator contacts Yellaiah and explains it in detail.

This cycle repeats every week; i.e., the coordinator to visit his crop once in a week and report the crop status (photographs and forms) to agricultural scientist. The system produces advice for that crop once a week from sowing to harvesting; i.e., without asking a query, Yellaiah receives guidance for the crop every week on the next day.

It could be a regular feature for a farmer in the State to interact with the agriculture experts in the near future. The assumption is based on a pilot project supported by Media Lab Asia Research and designed by the International Institute of Information Technology, Hyderabad.

The project, e-Sagu is a next generation IT-based, query-less, cost-effective and personalized agriculture extension system to improve agriculture productivity by disseminating expert's advice to the farmer at his doorstep.

The advice is based on the information about the crop in the form of both text and digital photographs.

In 2004, a prototype of 1051 cotton farms was developed and implemented. In the prototype, a team of agriculture experts stayed at IIIT, Hyderabad and delivered 20,000 pieces of advice to 1051 cotton farms of Oorugonda,

Gudeppad, and Oglapur villages in Atmakur mandal of Warangal district after going through digital photographs and information provided by some educated and experienced farmers (coordinators) in the villages.

The results were impressive. Encouraged with the results, a scaled up system for six crops in about 20 villages spread over six districts was proposed by IIIT. It was realized that efforts were not being made to transfer the technological developments in Information Technology to the farming sector. To bridge the urban-rural gap, the e-Sagu (*sagu* means cultivation) system was conceived to improve agriculture productivity by disseminating a fresh agriculture advice to the farmers, both in a timely and personalized manner.

The main objective was to develop an agriculture extension system to deliver personalized agriculture expert advice at the farmer's doorstep once in a week, without farmer asking any query. The main idea behind e-Sagu was to build such a system where a scientist without making a field visit will deliver expert advice by banking on digital pictures and other information. Overall e-Sagu consists of five components viz. farms-the end users of the system, coordinators - a person with agriculture experience, agriculture experts-scientist (AE.S), agriculture information system-system containing the relevant data, and communication system-mechanism to transmit farm status and photographs.

In the system several farms are assigned to each co-coordinator. The farmer registers into the system by supplying the relevant information including soil data, water resources, and capital availability through co-coordinator.

The co-coordinator visits the farm on a daily or weekly basis and mails the crop details in the form of text and digital photographs and also forwards feedback of last week's advice through the communication system. By accessing the soil data, farmer's details, crop database, and the information provided by the coordinators, the experts prepare the advice (in English) containing the steps farmer should take to improve crop productivity. This will be translated into the target audience language and stored in the system. Then the coordinators access the advice through the Internet, explain it to the farmers, take their feedback and forward it back to the experts.

A small computer center with two computers, a laser printer and other equipments was set up in each selected village. To take the project to farmers' doorstep, 14 educated farmers were selected as coordinators in each village and was assigned to help around 80 - 100 farms. At the same time a computer center with 11 desktop computers and one server was developed at IIIT, Hyderabad. Five agricultural scientists were employed in this project and about 200 farms were assigned to each agricultural scientist.

The prototype was implemented during June 2004 - January 2005. For each cotton farm, the system has delivered personalized expert advice once in a week to the corresponding farmer.

The final evaluation results have shown that with the help of e-Sagu, the farmers were able to gain up to Rs.3820 per acre. The break-up is as follows: Rs.230 per acre savings in fertilizers, Rs. 1105 per acre savings in pesticide, and an extra yield of Rs.2485 per acre.

At present the system is being implemented for crops such as cotton in Oorugunda, Malkapur centers in Warangal district, castor in Gurukunta center- Mahabubnagar district., groundnut in Nagireddipally centre of Ananthapur district, chillies in Banapuram of Khammam district., rice in Jinnuru, West Godavari dist., and red gram in Kotabasupalli in Ranga Reddy district. Besides this prototypes of e-Sagu are being developed for 200 aqua farms.

With such a kind of system in place, revolutionary changes in the agriculture scenario are inevitable. Being an agriculture-oriented scheme it can be further implemented to various other types of farming like poultry, aqua, cattle, etc., and the lag period can be reduced significantly. This system can generate employment for around one lakh rural youth in Andhra Pradesh alone in the near future. This will create more employment and subsequently there will be an increase in both the agriculture productivity and income level of farmers in general and weaker sections in particular.

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