

Report on the project entitled “WMO-ANGRAU-DST sponsored Roving Seminars on Weather, Climate and Farmers”

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The World Meteorological Organisation is promoting to organize a series of one day seminars for farmers in different regions of world. These seminars are intended to sensitize the farmers about weather and climate information and their application in operational farm management.

The objectives of these seminars are:

- To make farmers become more self reliant in dealing with weather and climate issues as the same affect agricultural production on their farms.
- To secure farmer self reliance, through getting them better informed about effective weather/climate risk management by sustainable use of natural resources for agricultural production.

To achieve the above objectives in the State of Andhra Pradesh in India, Roving Seminars were organized from October to December, 2007. A summary of these seminars is detailed below :

I. General

1. Number of seminars proposed and organized.

In the first phase 12 seminars were proposed, of which 9 were successfully organized. The remaining 3 would be organized as soon as the remaining funds from the co-sponsors – The Department of Science and Technology, Government of India are received.

2. Financial assistance

To organize 12 seminars the funds received and other details are follows:

The WMO released USD 6380 (equivalent to INR 2,59,960.00) and this amount was totally spent in organizing 6 seminars up to 31.12.2007.

The Department of Science and Technology, Government of India, the co-sponsoring organization sanctioned an amount of INR 3,00,000 as a matching

grant for the amount released by the WMO. However, so far the Government of India (GOI) released INR 1,50,000.00 and this amount is utilized in organizing 3 seminars. That means the amount released by WMO was spent for 6 seminars and the amount so far released by GOI was used for organizing 3 seminars. The remaining 3 seminars would be organized after receiving the remaining amount from the GOI.

A statement of expenditure is as follows:

S.No.	Item	Amount sanctioned	Amount Released	Amount Spent
	DST - GOI			
1.	TA/DA for senior resource persons	INR 60000	INR 30000	INR 30000
2.	Pre-seminar printing charges	INR 240000	INR 120000	INR 120000
3	WMO Organization of Seminars,	USD 2380	USD 2380	USD 2380
	Transport,	USD 2000	USD 2000	USD 2000
	Seminar Materials	USD 2000	USD 2000	USD 2000

A detailed expenditure statement along with the validated vouchers is being sent by land mail.

3. Farmers attendance

The number of farmers that attended each seminar ranged from 70 to 95. The women farmers were given lecture modules separately (suitable to their farm activities involving weather) as Andhra Pradesh women farmers traditionally do not participate along with men farmers in seminars. Incidentally, they hardly accept to be photographed, video recording, entering their names in any registers, etc., because of certain taboos, traditional beliefs etc.

4. Co-operation by agencies

The host institution Acharya N.G. Ranga Agricultural University provided the infrastructure facilities at its District Agricultural Advisory and Transfer of Technology Centres and permitted collaboration of the staff of these centers and they co-operated very well in successful organization of these seminars. In addition, the host farmers of the Rural Agricultural Work Experience Programme (RAWEP) of final year B. Sc (Ag.) and B. Sc(Horticulture) students have extended wonderful co-operation in selection of farmers and organization of the event. [The RAWEP is an apprentice training programme to all graduate students in Agriculture and Horticulture of the host University]. The staff of Government Departments of Agricultural has also participated and was involved at every stage in these seminars.

II. Technical aspects

1. Lectures

Lectures in local language (Telugu) by The Director, Co-director, Senior Resource persons, etc., were given on the following aspects

- Introduction to weather and climate.
- Introduction of terminologies used in weather/climate forecasting.
- Use of short term weather forecasting in agricultural operations.
- Introduction to clouds, weather map, etc.
- Introduction to seasonal climate patterns.
- Climate risk in production and drought alerts in different crops.
- Introduction to better risk management.
- Introduction to measurement of weather elements.
- Planning cropping strategy, water requirements, etc.
- Video/slide show on weather/climate disasters and their management.
- Display of wall posters, laminated diagrams on weather and climate.

2. A special operational agrometeorological tool “DINASARI VATAVARANAM-VYAVASAYAM” (DAILY WEATHER- AGRICULTURE) and Murthy’s Comparison Concept.

During each seminar the farmers were shown/given the daily weather data for the last 30 days. These data were collected from the daily newspapers available in the villages where the seminar was being organized, after pasting the same in front of them a day before the event. After showing this huge and valuable information on weather that is available in their own village, the farmers responded with unparalleled enthusiasm to do the same on their own, for their own farm as community benefit. Some farmers agreed to copy/write the weather information available daily on Television and Radio and transmit/exchange the same with other farmers. This operational agrometeorological tool “DVV (Dinasari Vatavaranam- Vyasayam)” involves no money because the newspapers are bought by villagers/farmers for learning and enlightening themselves on several issues. Also, in India and Andhra Pradesh, newspapers are very inexpensive and Television and Radio are available in all villages. Based on the trends observed (analysis of weather data), management options and guidance were made available to the farmers within the hand outs, as also the “Vyasaya Panchangams (Agricultural Diary)” distributed during these seminars.

Murthy's "Comparison Concept" takes into account the weather/climate forecast, issued in real-time basis, and uses derived parameters as the basis for warning. These real time forecasts and derived parameters are compared with the scenarios of past seasons or years and a suitable set of common similarities on levels of pests and disease incidence and crop performance are arrived. This information helps to produce future scenarios of occurrence of pests and diseases, crop yield etc., in addition to determining the levels of incidence of pests and diseases and projected crop yield in the ongoing season. This concept can be used wherever appropriate and for developing thumb rules/dynamic simulation models/empirical models.

This concept was explained in brief in local language to all the farmers.

III. Seminar-wise brief details

In addition to the lecture modules, agricultural diaries, handouts, discussions etc., for/with the farmers, as detailed above, the specific issues pertaining to each village/group of villages covered in seminars are given below.

1. Mahbubnagar District

a) Chandur Village

The first seminar was organized in this village on 30 October 2007. Farmers were enlightened on the influence of weather/climate on the crops grown in the village Viz., onion, Bengal gram, paddy, red gram etc. The specific issue addressed in this seminar was the "Onion-Bengal gram problem". Interestingly, in this region the onion crop reaches harvest stage in the last week of October during which time Bengal gram will be in its peak vegetative stage. At these different phenological stages of their growth, if rain occurs the yield reduction/loss of onion crop is 75% and if rain has not occurred the yields of Bengal gram would be reduced by 50%. So, during this seminar certain agronomic and agrometeorological measures like selection of proper genotypes, soil moisture conservation techniques etc., were suggested.

b) Yemmangandla Village

During the seminar on 31 October 2007, in this village, as per the request by the farmers, specific issues like method demonstrations on weather based rhizobium culture, vermicompost preparation etc., were organized. Also, a real time method demonstration on use of 2% common salt as spray against the inevitable damage to paddy seeds, because of unwanted germination due to rains, was organized. A week after this demonstration (virtually paddy was affected by the cyclonic rains on the day of the

seminar), farmers informed that their paddy produce was practically safe by adopting this technique.

2. Kurnool District

c) Loddipally village

The seminar in this village was organized on 13 November 2007. The farmers were enlightened on the influence of weather/climate on crops grown in the region as also on farm animals, because animal rearing fetches here nearly 30-40 % of regular monetary income to farmers. A real time method demonstration on sun drying of groundnut pods was organized to protect the kernels from being affected by aflotoxins and to improve the quality of kernels.

d) Vuyyalawada village

The seminar in this village was organized on 14 November 2007. In addition to influence of weather on different crops, a real time method demonstration on influence of slightly warm wind on the incidence of pests and diseases was organized during the seminar in this village. Also, another real time method demonstration on the advantages of weather based top dressing of Nitrogenous fertilizers, to prevent air and soil pollution, was organized.

3. Ananthapur District

e) Siddaramapuram village

The seminar in this village was organized on 28 November 2007. A striking agricultural practice that was observed in this village, was that a farmer had sown red gram with different inter and intra row spacing. Rains received during July-August 2007 were more than normal. As a consequence, the crop sown in sparse densities recorded optimal growth and excessive growth was observed in densely sown areas. The farmer then cut the alternate rows in these densely sown areas, where the LAI was more than optimum, to achieve optimum yields. This issue was one of the important topics that were covered during the seminar in this village. Additional information was organized in a real time method demonstration on “Spraying of pesticide along the direction of prevailing wind”.

f) Krishnamreddipally village

The specific issue covered during the seminar in this village, on 29 November 2007, was technical knowledge imparted to the farmers on “Growing of sweet orange on red and black soils” in the village. A peculiar weather based problem in this region is that farmers in the same villages grow sweet orange on shallow red as well as deep and ill-drained black soils. The farmers that raise this crop on red soils need 8-10 rains during July- August each year, whereas the farmers growing it on black soils need only 2-3 rains. This problem was addressed by suggesting agrometeorological measures like soil moisture conservation techniques, drainage improving techniques through organic farming etc.

4. West Godavari District

g) Dendulur village

A good number of well experienced and rich as well as small and marginal farmers attended the seminar, on 23 December 2007, in this village. The farmers in this region store the agricultural produce in different storage and staking structures called “VARI-PURI (Paddy Bins)”. These specific structures protect their produce from weather risks and uncertainties like cyclonic rains, heavy winds, excessive air humidity etc. Therefore, the specific and additional issues covered during the seminar in this village included weather proof and cost effective storage structures for farm produce. A state of the art “VARI-PURI” built by a farmer stands technically much taller than any ones imagination. This storage structure not only protects paddy grains and straw from the mentioned weather hazards but also from possible fire, theft problems etc. This wonderful agrometeorological technique must be popularized across the globe.

h) Gopannapalem village

The specific issue covered in this seminar, on 24 December 2007, was on “Weather based cultivation of oil palm”. The oil palm crop is specially grown in this region for the last 5-6 years. The weather suits this crop in this region very well and this fact was noticed 6 years ago. A real-time method demonstration on propping of sugarcane crop to protect the crop from cyclonic winds was organized.

5. Ranga Reddy District

i) Kandukur village

In this village, farmers extensively grow all tropical vegetable crops. During the seminar, on 30 December 2007, method demonstrations on agrometeorological techniques like drought management, rain water harvesting were taught in addition to weather based vegetable crop cultivation.

The remaining three (3) seminars will be organized as soon as the funds are received from the Department of Science and Technology of The Government of India.

IV. Farmers/ Resource personnel/ administrators view points

The farmers, resource personnel, administrators etc., that have attended the seminars so far approved in “ONE-VOICE” for continuation of these seminars. They expressed that:

1. Weather/climate play a very vital role in all farm operations.
2. “Climate change” is being observed and there is an urgent need to address farm issues tailored to these changes.
3. Weather/Climate is a “NON-MONETARY” farm input. Since the cost of all farm inputs are increasing at an alarming rate, the use of information on weather, as non-monetary input, is the need of the hour.
4. The new operational agrometeorological tool tested in these seminars ”DINASARI VATAVARANAM- VYAVASAYAM (DVV)” in English called as “Daily weather-agriculture” has immense potential to reduce the cost of cultivation and must be popularized as an agrometeorological service.
5. The farmer friendly software proposed on “Comparison Concept” must be made available at an early date for testing on pilot basis.

V. Major administrative suggestions

- a) Instead of a Co-Director for each seminar at District level, only one Co-director alongwith the Director at Head Quarters (Hyderabad) will make the things move and deliver the output required.

- b) To address the weather related problems of further large communities of farmers, the involvement of NGOs as cooperating centers instead of only University centers is essential.

VI. An appeal to WMO

It is politely submitted to the WMO that the State of Andhra Pradesh is 4th largest of Indian States in geographical area and 5th largest in terms of population. This state enjoys a position of “EXCELLENCE” in respect of agricultural crop production, as over 70 % of total population (85.7 million) depend on agriculture, shedding their energy and time for their own livelihood and for humanity. Even though the climate of this State is diversified, the agriculture sector is strongly driven by the monsoon behavior. The reason is that the rainfall (varying largely inter and intra annually) as also other weather (risks and uncertainties) in this State is influenced by both South-west and North-east monsoons. The normal rainfall of the State is 940mm, of which a major portion (close to 70 %) is contributed by South-west monsoon (June-September) followed by North-east monsoon (close to 20 %) from October to December. The rest, of close to 10 % rainfall, is received during the winter and summer months. The rainfall distribution of the state differs with season and monsoon. The influence of the South-west monsoon is predominant in Telangana region (714mm), followed by Coastal Andhra (620mm) and Rayalaseema (407mm). The North-east monsoon provides high amount of rainfall in Coastal Andhra (324mm) followed by Rayalaseema (238mm) and Telangana (129mm). The above information clearly indicates that the farmers and farming depend greatly on highly varying monsoon behavior. It is essential that the farmer be educated on weather and climate to perform their farm operations based on monsoon behaviour. Therefore, this project must be extended to the remaining 16 districts of this state, with a financial outlay of USD 32000.00 (For 32 seminars @ 2 in each district). So, WMO is requested to consider to grant this amount or this humble request may be forwarded to (an) appropriate donor/s for their consideration.

VII. The product of the seminars.

A book/ booklet entitled “Vaatarana Shakti - Kharchuleni Vutpatti”, in English “The sound and power of weather and agriculture” is proposed to be printed in the local language (Telugu) and planned to be distributed, based on receipt of funds from the donors.

VIII. Conclusion

Farmers unequivocally requested for the continuous organization of these seminars. They wanted the agrometeorological tool “Dinasari Vaatavaranam – Vyavasayam” to be made into an agrometeorological service. They are also eagerly awaiting the software on the ‘Comparison Concept’. Under these circumstances, the WMO is obediently requested for liberal financial assistance and support for continuation of this project.

XI. Acknowledgements

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Dr. Radhakrishna Murthy Vasiraju, 15th January, 2008

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