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2010 – Do or Die Year on the Farm Front

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It is now 42 years since the term “green revolution” was coined by Dr William Gaud of USA, to describe advances in production arising from productivity improvement. Even in 1968. I concluded that if farm ecology and economics go wrong, nothing else will go right in agriculture. I expressed my views in the following words in my lecture at the Indian Science Congress Session held in varanasi in January, 1968.

“Exploitative agriculture offers great dangers if carried out with only an immediate profit or production motive. The emerging exploitive farming community in India should become aware of this. Intensive cultivation of land without conservation of soil fertility and soil structure would lead, ultimately, to the springing up of deserts. Irrigation without arrangements for drainage would result in soils getting alkaline or saline. Indiscriminate use of pesticides, fungicides and herbicides could cause adverse changes in biological balance as well as lead to an increase in the incidence of cancer and other diseases, through the toxic residues present in the grains or other edible parts. Unscientific tapping of underground water will lead to the rapid exhaustion of this wonderful capital resource left to us through ages of natural farming. The rapid replacement of numerous locally adapted varieties with one or two high yielding stains in large contiguous areas would result in the spread of serious diseases capable of wiping out entire crops, as happened prior to the Irish potato famine of 1854 and the Bengal rice famine in 1942. Therefore the initiation of exploitive agriculture without a proper understanding of the various consequences of every one of the changes introduced into traditional agriculture, and without first building up a proper scientific and training base to sustain it, may only lead us, in the long run, into an era of agricultural disasters rather than one of agricultural prosperity.”

The above analysis led me to coin the term “ever-green revolution” to describe the enhancement of productivity in perpetuity without associated ecological harm.. The pathways to ever-green revolution are either organic farming or green agriculture. Green agriculture involves the adoption of environment friendly practices like integrated natural resources management and integrated natural resources management and integrated pest management. I hope during this decade, PAU

will become a catalyst of ever-green revolution in the farms of Punjab. For several decades to come, Punjab will remain the main provider of wheat and rice to the national public distribution system. It is therefore our sacred duty to conserve and enhance the ecological foundations such as soil, water and biodiversity essential for sustained advances in agricultural productivity and profitability

Source **Dream 2047, April 2010 Vol 12 No. 7**

P.P. 31 - 34

The present decade may mark the beginning of a new climate era, characterized by extreme and often unpredictable weather conditions and rise in sea levels. The recent

Climate conference in Copenhagen unfortunately failed to get a global commitment to halt economic growth based on high carbon intensity. The Climate Conference due to be held in Mexico in December this year will probably generate the political commitment essential to restrict the rise in global mean temperature to not more than 2 degree C, as compared to the mean temperature of today. Even a 2 degree C rise will affect adversely crop yields in South Asia and Sub-Saharan Africa, which already have a high degree of prevalence of endemic hunger, It will also lead to the possibility of small islands getting submerged. The greatest casualty of Climate change will be food., watered livelihood security. Farmers of the world can help to avoid serious famines by developing and adopting climate resilient farming systems. 2010 has been declared by the United Nations as the “International Year of Biodiversity”. Biodiversity is the feedstock for a climate resilient agriculture. We should therefore redouble our efforts to prevent genetic erosion and to promote the conservation and sustainable and equitable use of biodiversity.

2010 will also witness a major conference at the United Nations Headquarters in New York to review the progress made since the year 2000 in achieving the U N Millennium Development Goals. The first among these goals is reducing hunger and poverty by half by 2015. Unfortunately the number of hungry children, women and Men. which was 800 million in 2000 is now over a billion. This is partly due to a rise in food prices, there by making it difficult for the poor to have access to balance diet at affordable prices. There is no time to relax and the farmers of the Punjab must redouble their efforts to increase food production through an ever-green revolution pathway of increasing productivity in perpetuity without associated ecological harm. Without the total commitment of PAU and the farmers of Punjab to the goal of producing more by adopting climate resilient farming systems, the goal of “food for all and for ever” cannot be reached in our country.

Adaptation to Climate Change

A group of scientists led by MSSRF have undertaken studies during the last five years in Rajasthan and Andhra Pradesh on climate change adaptation measures. The districts chosen were Udaipur in Rajasthan and Mehabubnagar in Andhra Pradesh. The approach adopted was to bring about a blend of traditional wisdom and modern science through farmer participatory research. The participatory research and knowledge management systems adopted under this programme during the past five years have provided many useful insights for developing A climate resilient farming and livelihood security system. Five of the meaningful adaptations in interventions were the following.

Water conservation and sustainable and equitable use: Families in the desert regions of Rajasthan have long experience in harvesting every drop of rain water and using it economically and efficiently both for domestic and agricultural use. The traditional methods were reinforced with modern scientific knowledge, like the gravity flow method of water management.**Promoting fodder security:** Livestock and livelihoods are intimately related in rid and semi-arid areas. The ownership of livestock is also more egalitarian. The Sustainable management of common property resources, particularly pasture land, is essential for ensuring fodder security. Therefore, high priority was given to the regeneration of pasture land and the equitable use of grazing land **More crop and income per drop of water:** In areas where water for irrigations the constraint, it is important that agronomic techniques which can help to increase yield and income per drop of water are standardized and popularized. One such method introduced under this

project is the System of Rice Intensification (SRI). SRI was popularized in Andhra Pradesh, since this system of water and crop management helps to reduce irrigation water requirement by 30 to 40%. This method thus helps to avoid the unsustainable exploitation of the aquifer.

Weather Information for All and Climate Literacy : What farmers need is location specific meteorological information at the right time and place. Generic weather data will have to be converted into location – specific meteorological in Advice. For this purpose, mini-agro-meteorological stations managed by the local community were established. This has helped to impart Climate literacy as related to food, water and livelihood security.

Strengthening Community Institutions: Effective implementation of adaptation measures will need active group cooperation and community participation. Steps Were taken to involve the grassroots democratic institutions like panchayats and Gram Sabhas. Also, Smart Farmers” Clubs were organized to give the power of scale in water harvesting, soil health management and other adaptation measures undertaken by farmers with small holdings. The above interventions were supported by training and skill development and education and social mobilization. A Training Manual was prepared by MSSRF

For training one women and one male member of every Panchayat as “Climate Risk Managers”. Such local levels Climate Risk Managers will be trained in the

Art and science of managing weather abnormalities. The work has highlighted the need for location specific adaptation measures and for participatory research And knowledge management. The adaptation interventions have also highlighted the need for mainstreaming gender considerations in all interventions. Women will suffer more from Climate Change, since they have been traditionally in charge of collecting water, fodder and fuel wood have been shouldering the responsibility for farm animal care and post –harvest technology. All interventions should therefore be pro–nature, pro-poor and pro-women.

The last five years have been an extremely rewarding learning period. The results and experience have shed light on the way forward. It is clear that to promote location specific and farmer centric adaptation measures:, India will need a Climate Risk Management Research and Extension Centre at each of the 127 agro-ecological regions in the country. Such centers should prepare Drought, Flood and Good Weather Codes what can help to minimize the adverse impact of abnormal weather and to maximize the benefits of favorable monsoons and temperature. Risk surveillance and early warning should be the other responsibilities of such centers. Thus the work done so far has laid the foundation for a Climate Resilient of Agriculture Movement in India. The importance of such a Movement will be obvious considering the fact that 60% of India’s population of 1.1 billion depend upon agriculture for their livelihoods. In addition, India has to produce food, feed and fodder for over 1.1 billion human, and over a billion farm animal population.

Challenges Ahead

2010-11 is a watershed year in the history of Indian agriculture. Producing food in adequate quantities and making them available at affordable prices will be the greatest challenge during this year. Also, our food security should be built on the foundation of home grown food, since agriculture is the backbone of the livelihood security system of nearly 700 million people in the country. Nearly 60 per cent of the cultivated area is rain fed and these are the areas where pulses oilseeds and other crops of importance to nutrition security such as millets are grown. I need hardly emphasize that India is the home for the largest number of malnourished children, women and men in the world. The majority of the malnourished are producer-consumers (ie. farmer-consumer) and landless labour. Increasing the productivity and profitability of small farms is the most effective Method of achieving the UN Millennium Development Goal No. 1 ; i.e, reducing Hunger and poverty.

Road Map

A road map for our agricultural renaissance and agrarian prosperity was presented by the National Commission on Farmers (NCF) in their five reports presented between 2004 and 2006. The reports are yet to be printed, let alone implemented. For example, 70 per cent of India's population does not find a place in the Padam awards announced on January 26 each year, although the NCF had stressed the need for according social prestige and recognition to farmers through such gestures. Farming , particularly in the heartland of the green revolution comprising Punjab, Haryana and Western UP is in deep ecological and economic crises. No wonder over 40 per cent of the farmers surveyed by NSSO wish to quit farming, if there is another option. Some of the areas needing immediate attention and action are the following.

- **Defending the gains already made in the green resolution areas:** This can be Done through Conservation Farming, involving concurrent attention to soil health enhancement, water conservation and effective use, biodiversity protection and launching of a Climate Resilient Agriculture Movement, is an urgent task. These Are the areas which feed the public distribution system. NCF had recommended the allocation of Rs. 1,000 crore for this purpose. Expenditure in this area will also come under the 'Green Box' provision of the World Trade Organization (WTO). Climate resilient agriculture will involve shifting attention to per day rather than per crop productivity. **Extending the gains to eastern India:** The sleeping giant of Indian agriculture" Bihar, Chattisgarh Jharkhand, eastern UP, West Bengal, Assam and Orissa" have immense untapped production potential, A large number of Govt. of India schemes with a substantial financial outlay, like the Rashtriya Krishi Vikas Yojana, Food Security Mission, and National Horticulture Mission, and National Horticulture Mission exist, but are not making the desired impact on the productivity and production of small farmers. A well planned "Bridge the yield Gap Movement " needs to be initiated with the active involvement of farming families. Gram Sabhas need to be involved in finalizing the components of the Bridge the Bridge the Yield Gap Movement. The different

agencies involved in this task should adopt a “Deliver as one” approach with the help of Gram Sabhas.

Enhancing the Productivity of dry farming areas: The gap between potential and actual yields with the technologies on the shelf ranges from 200 to 300 per cent in these areas. Prime Minister Rajeev Gandhi initiated a dry land farming revolution in these areas through the Pulses and Oilseeds Missions, but end to end approach he had designed was soon given up and there was a reversion to the business as usual approach. I suggest that during 2010-11, 60,000 ‘Pulses and Oilseed Villages’ may be organized in rain fed areas, to mark the 60th anniversary of our Republic. In each of these villages, there should be a ‘Lab to Land’ programme organized by the ICAR and Agricultural Universities. These pulses and Oilseed Villages may be developed with the help of Gram Sabhas and with the active involvement of farm scientists with the requisite knowledge and experience. Workers under National Rural Employment Guarantee Act (NREGA) can help in water harvesting, watershed management and soil health Enhancement. Such villages should pay integrated attention to conservation, cultivation, consumption and commerce. Assured and remunerative marketing will hold the key to stimulating and sustaining farmers’ interest. Today, the consumer is paying very high prices for pulses, but the producer lives in poverty.

Mahila Kisan Sashaktikaran Pariyojana: In 2004-05, 49% of male workers and 65% of all women workers were in agriculture (National Sample Survey Organization 2004-05) 83% of rural female workers are engaged in work related to crop and animal husbandry, fisheries and forestry. Farm size is declining and 70% operated less than 1 ha in 2003, compared with 56% in 1982. Conferring the economy and power of scale to farm families with small holdings is the most serious challenge facing our agriculture. Cooperative farming has been successful in the dairy sector in Gujarat and a few other States. It has not been successful in crop husbandry, although Andhra Pradesh has recently initiated a programme for promoting farm cooperatives. There is increasing feminization of agriculture as well as NREGA. Gender specific needs of women farmers, including credit, technology, training and support services like crèches and day care centers, are urgently needed. I therefore suggest that a Mahila Kisan Sashaktikaran ariyojana may be initiated during 2010-11. The implementation could be through the women members of Panchayats and Women self-help Groups.

Yuva Kisan and Agriculture Renaissance: Nearly 70 percent of our population is below the age of 35 and 70 percent of them live in villages. The future of our agriculture will depend upon attracting and retaining youth in farming. This is one of the principal goals of the National Policy for Farmers(2007). There are several government projects, which if revamped and revitalized, can help to make farming as a professions attractive to educated youth a new programme for youth in agriculture may be initiated by integrating several ongoing schemes like the Small Farmers’ Agri-business Consortium (SFAC), Agri-Clinics, Agri-business Centre, Food parks, etc. This will help to stimulate the formation of Young Farmer’s Self help Groups, SFAC could be developed into a Young Farmers Agri-business Consortium, bringing together all relevant programmes

Climate change and Food and Water Security food and water security will be the major causalities of a rise in mean temperature, monsoon uncertainty, drought, floods, and sea level rise. Some Of the steps which could be initiated during 2010-11 are: Promoting a water conservation pond as well as a biogas plant in every farm, whenever farmers have farm animals. Planting one billion fertilizer trees which can serve as 'soil carbon banks', enrich soil fertility and enhance farm productivity. Funds for this purpose (Rs. 13,000 crore) are available with the Ministry of Environment and Forests under the Compensatory Afforestation Fund Management and Planning Authority (CAMPA). **Establishing Farmer Participatory Research and Training Centers for Climate Change Management in each of the 127 agro-climate zones of the country:** Such centers will train at least 1 woman and 1 man in every Panchayat as Climate Risk Managers. The centers can be located in either Agricultural and Animal Agencies universities or Krishi Vigyan Kendra or ICAR Institutes. **Building Mangrove and Non-mangrove Bioshields along the Coast:** These are essential for reducing damage from sea level rise, cyclones and tsunamis. Along with the bioshields, 1,000 sea water farming demonstrations can be organized. Sea water is a social resource, as stressed by Mahatma Gandhi, when he launched the salt satyagraha. Sea water farming will involve the establishment of aquaculture farms. The Farmer Participatory Demonstrations could be organized along our coast as well as in the Lakshadweep and Andaman group of islands.

Establishing a National Grid of Ultra-modern Grain storages: During this year, we should begin establishing ultra-modern grain storages at least in 50 locations in the country, each with a storage capacity of a million tones of food grains (i.e., a 50 million tones storage grid). Government should remain at the commanding height of the food security system.

The year 2010 is a 'do or die' year for Indian agriculture. If we don't take steps to address the serious ecological, economic and social crises facing our farm families, we will be forced to support foreign farmers, through extensive food imports. This will result in a rise in food inflation, increases the rural – urban and rich-poor divides and allow the era of farmers' suicides to persist. On the other hand, we have a unique opportunity of ensuring food for all by mobilizing the power of Yuva and Mahila Kisans and by harnessing the vast untapped yield reservoir existing in most farming systems through synergy between technology and public policy. Overcoming hidden hunger caused by micronutrient deficiencies like iron, iodine, zinc, Vitamin A and Vitamin B 12 can be achieved by growing and consuming appropriate local vegetables and fruits. There is a horticultural remedy for every nutritional malady. Moringa, which is a Jew's mung in the horticultural crown, is an example. Urban and non-farming members of the human family should realize that we live on this planet as the guests of sunlight and green plants, and of the farm women and men who toil in Sun and rain, and day and night, to produce food for over 6 billion people, by bringing about synergy between green plants and sunlight. Let us salute the farmers of the world and help them to help in achieving the goal of a hunger free world, the first among the U.N. Millennium Development Goals. The National Policy for Farmers (2007) calls for a paradigm shift from measuring agricultural progress

slowly in terms of production, to assessing advances In agrarian prosperity. It calls for steps to attract and retain youth in farming. For this purpose, the National Commission on Farmers has appealed to our Agricultural Animal Sciences and Fisheries University to adopt and implement the motto, “Every Scholar an entrepreneur”. currently, 57% of our population depend upon agriculture for their livelihood, but the contribution of agriculture to GDP has been going down and is at present about 18% . As men migrate to towns and cities in search of jobs, there is increasing feminization of agriculture. The NCF has recommended group farming through self-help groups and contract farming. If it represents a win-win situation for producers and purchasers. In a recent article in the Economic and Political Weekly, Bina Agarwal has pointed out that collectivities of small farmers can help to improve their economic well being. We Need urgently a Small Farm Management Reform and PAU can show the way.

This decade will show that the future belongs to Nations with grains and not gunsHuman destiny during this decade and beyond will be shaped by farm women and men. This decade will thus be the “Decade of Farmers’.

Source : Dream 2047. April 2010, Vol 12 No. 7 p.p. 31-34

Recent Periodical Literature

Agriculture

004540

Author : Webber, H and others

Title : Response of two legume crops to soil salinity in gypsiferous soils.

Source : Irrigation and Drainage

Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 586-595

Keywords : Soil Salinity, Gypsum, Fergane, Legume Crops, Yield, Green House,

Abstract : This green house study evaluated various growth components of common bean and green gram irrigated with deficit irrigation in soils with and without Gypsum and three levels of soil salinity. Results showed that biomass and leaf area decreased by approximately 20 percent for both crops, as E_c increased from 2.8 to 7 dSm⁻¹. Yields were higher at all salinities for green gram than in common bean. However, relative yield reductions with increasing salinity were greater for green gram (43 percent) compared to common bean (19-31 percent).

004541

Author : Salvati, L and others

Title : Monitoring Drought severity in Agriculture through a synthetic index based on dry periods: A case study in Mediterranean basin.

Source : Irrigation and Drainage

Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 596-606

Keywords : Drought, Water Deficit, Climatology,

Abstract : Among the several methods proposed for describing drought, the run method appears as suitable to provide an objective characterization of drought events. A simple drought index, obtained from only two input variables (rainfall and reference evapotranspiration), able to describe different dimensions of drought phenomena (duration, intensity and severity) and to recognize "normal" conditions, both in statistical and ecological terms, is meaningful. Our interest is therefore to develop such a drought index, able to produce information on a detailed geographic and time scale. In conclusion, a synthetic index of drought severity (DSI) may be used to assess the Agro climatic conditions occurring in a certain

location through only two input variables. It allows a synthetic description of drought episodes in terms of both dry spell length and water balance.

004542

Author : Labeledzki, L;Kanecka-Geszke, E
Title : Standardized evapotranspiration as an Agricultural drought index
Source : Irrigation and Drainage
Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 607-616
Keywords : Evapotranspiration, Sugar beet, Drought,
Abstract : Drought risk for sugar beet was estimated based on standardized evapotranspiration index ETs and the frequency of drought occurrence. Standardized evapotranspiration index ETs was calculated for four soil types of different useful soil water reserves using the series of actual evapotranspiration ET for sugar beet growing seasons in 1970-2004, taken from 40 Meteorological stations located in various Agro climatic regions of Poland. A great spatial differentiation of the frequency of droughts depending on drought category and soils were determined. Differences between the stations were observed, whereas differences between soils were less. The minimum frequency was observed on soil with the greatest total available soil water.

004549

Author : Takate, Adinath;Rajguru, Anil
Title : Koradvahu sheti- sudharit tantradnyan (Marathi)
Source : Baliraja
Vol/Iss/Mth : 41(5), May Year : 2010 Pages : 38-46
Keywords : Dry farming, Cropping Pattern, Fertilisers, Modern technology,

004551

Author : Kshirsagar, K.K.
Title : Jagbharche sheti shastradnya-5 : Bharatatil adhunik shetiche krushishikshan Maharshi v sanshodhak :Dr. Sam HiginBottom
Source : Baliraja
Vol/Iss/Mth : 46(5), May Year : 2010 Pages : 95-99
Keywords : Agriculture Extention, Agriculture Education, Agriculture Research,

Engineering

004532

Author : Kulkarni, P.G.

Title : Pinyache pani v apan (Marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 37-39

Keywords : sanitation, Drinking water, water purification,

004533

Author : Nemade, V.D.and others

Title : Jalgunvatta tapasni - ek kalachi garaj (marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 40-41

Keywords : Water quality,

004534

Author : Jawlekar, Anand

Title : Panyachya gunvatteche vyavasthapan (marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 42

Keywords : Water quality management,

004535

Author : Mendargikar, Deepnarayan

Title : Panyachya gunvatteche vyavasthapan (marathi)

Source : Jalsanvad

Vol/Iss/Mth : (3),Mar Year : 2010 Pages : 47-49

Keywords : Drinking Water,Water quality,

004538

Author : Tabatabaei, S.H.;Najafi, P.

Title : Effects of Irrigation with treated municipal waste water on soil properties in Arid and Semi Arid regions.

Source : Irrigation and Drainage

Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 551-560

Keywords : Irrigation, Waste water, Soil Properties, Arid regions, Semi Arid regions, Irrigation Methods,

Abstract : In this study, secondary treated municipal waste water was used in five irrigation treatments. These treatments were as follows: furrow irrigation with normal water (FN), drip irrigation with waste water (DI), subsurface drip irrigation in 15 cm depth with waste water (SDI 15), subsurface drip irrigation in 30 cm depth with waste water (SDI 30), and furrow irrigation with waste water (FW). The result showed that the application of DI and SDI sand filters causes a decrease in waste water index pollution, including 50.1 percent BOD5, 98.9 percent total count, 97.6 percent total coli form, 93.2 percent faecal coli form , 57.8 percent Nematode, 81 percent total nitrogen, 52 percent N-NO3, 84 percent N-NH 4 and 44 percent total suspended solids.

Geology Earth sciences

004531

Author : Kulkarni, Upendra
Title : Naditil panyachi gunvatta (marathi)
Source : Jalsanvad
Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 32-34
Keywords : Water quality, River basin, Benchmarking,

004543

Author : Dogan, E
Title : Reference evapotranspiration estimation using adaptive Neuro-Fuzzy Inference Systems
Source : Irrigation and Drainage
Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 617-628
Keywords : Evapotranspiration, Penman-Monteith model, Multiple Linear Regression Model, ANFIS Model,
Abstract : In this study, the potential of the adaptive Neuro-Fuzzy inference system (ANFIS) is investigated in modeling of daily grass crop reference evapotranspiration (ET_o) obtained using the Penman-Monteith equation. Various combinations of daily climatic data, namely solar radiation, air temperature, relative humidity and wind speed, are used as inputs to the ANFIS so as to evaluate the degree of effect of each of these variables on daily Penman-Monteith estimated ET_o. The results of the ANFIS model are compared with a multiple linear regression model. Mean square error, average absolute relative error and determination coefficient statistics are used as comparison criteria for evaluation of the model performance. Based on

the comparisons, it was found that the ANFIS model could be successfully employed in estimating the daily ETo.

004552

Author : Jha, B.M.;Sinha, S.K.
Title : Towards better management of ground water resources in India
Source : Water and Energy International
Vol/Iss/Mth : 67(1),Jan-Mar Year : 2010 Pages : 2-18
Keywords : Water logging,Rain water Harvesting, Ground water Management, Ground Water Resources,

004526

Author : Nagargoje, K.M.;Deshpande, Shashank
Title : Bhujal gunvatta -vyavasthapan hi kalachi garaj (Marathi)
Source : Jalsanvad
Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 2-6
Keywords : Groundwater management,

004527

Author : Khobragade, Kshama
Title : Panyachya gunvatteche vyavasthapan (marathi)
Source : Jalsanvad
Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 7-10
Keywords : Water quality Management,

004528

Author : Dharashivkar, Mukund
Title : Ek rashtriya vasa- Shuddha pani (marathi)
Source : Jalsanvad
Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 11-15
Keywords : Clean water, Sedimentation,

004529

Author : Oak, Sham
Title : Panyachi gunvatta v tiche niyantran (Marathi)
Source : Jalsanvad
Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 25-27

Keywords : water quality control, Water pollution, Waste water, Safe Drinking water,

004530

Author : Deshkar, Datta

Title : Panyachi gunvatta vyavasthapan -Ek avhan (marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(3),Mar Year : 2010 Pages : 28-31

Keywords : Water quality management, Peoples participation,

Hydraulic Engineering

004539

Author : Shahrokhnia, M.A. and others

Title : Influence of lateral canal water depth on off take and cross regulator discharge.

Source : Irrigation and Drainage

Vol/Iss/Mth : 58(5), Dec Year : 2009 Pages : 561-568

Keywords : Canal Water, Cross Regulator, Irrigation Canal,

Abstract : The influence of lateral canal water depth on the off taking and ongoing discharges were simulated and evaluated using a simple model in the Doroodzan irrigation system in south western Iran. Results confirmed the influence of water level changes in the lateral irrigation canal on off take and cross regulator discharge. Results obtained also led us to introduce and evaluate two other sensitivity indicators: off take sensitivity to downstream water depth, and check sensitivity tertiary canal water depth.

004554

Author : Castro-Orgaz, Oscar;Chanson, Hubert

Title : Bernoulli theorem, minimum specific energy, and water wave celerity in open channel flow

Source : Journal of irrigation and drainage engineering

Vol/Iss/Mth : 135(6), Nov-dec Year : 2009 Pages : 773-778

Keywords : Open channel flow, Weirs, Flumes,

Abstract : In the present work, a detailed analysis of the Bernoulli theorem and its extention to flow in open channels are developed. The generalized depth averaged Bernoulli Theorem is proposed and it has been proved that depth averaged specific energy reaches a minimum in covering accelerating free surface flow over weirs and flume.

004555

Author : Nejadhashemi, Amir.P.and others
Title : Case study :Evaluation of stream flow partitioning methods
Source : Journal of irrigation and drainage Engineering
Vol/Iss/Mth : 135(6),Nov-Dec.

Year : 2009 Pages : 791-801

Keywords : Subsurface Flow,Stream Flow, Base Flow, Case Study,

Abstract : Like many problems in hydrology, numbers of methods have been proposed for stream flow partitioning. Five methods were identified as being the most relevant and least input intensive.This study tested performance of these methods against separately measured surface and subsurface flow data from the coastal plain physiographic region of the Southeastern United States. This study concluded that deterministic or Empirical methods such as Bough ton's method iv,require proper parameter value for increased accuracy.

004548

Author : Lozano, David and others
Title : Field calibration of submerged sluice gates in irrigation canals.
Source : Journal of Irrigation and Drainage Engineering
Vol/Iss/Mth : 135(6), Nov-Dec

Year : 2009 Pages : 763-772

Keywords : Irrigation Canals,Gates,Field Calibration,Open Channel Flow,Discharge Equations,

Abstract : For the sluice gates considered in this study, the best empirical fit was obtained by expressing Cd as a parabolic function of w, although an exponential expression tested previously by other titles also produced satisfactory results. The greatest uncertainty in the variables considered in this study was in the calculated co-efficient of discharge, and based on uncertainty analysis, it is possible to quantify the uncertainty in the estimated discharge through a calibrated sluice gates. The discharge uncertainty in each of the four gates in this

study decreases with increasing gate opening, and it decreases slightly with increasing head differentials.

Irrigation

004523

Author : Purandare, Vidya

Title : Sinchan Vyavsthapanat Mahilancha Sahbhag (Marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(2), Feb Year : 2010 Pages : 11-13

Keywords : Women's participation, Women Farmer, Irrigation Management, Water Users Association,

004524

Author : Bharswadkar, R.B.

Title : Sahbhagi Sinchan Vyavsthapanasambandhi Rashtriy Charchasatra - Ek Avlokan (Marathi)

Source : Jalsanvad

Vol/Iss/Mth : 6(2), Feb Year : 2010 Pages : 17-20

Keywords : Participatory Irrigation Management,

004525

Author : Rodriguez-Sinobas, Leonor and others

Title : Water distribution in laterals and units of subsurface drip irrigation I: simulation

Source : Journal of Irrigation and Drainage Engineering

Vol/Iss/Mth : 135(6), Nov-Dec

Year : 2009 Pages : 721-728

Keywords : Hydraulic Design, Subsurface Drip Irrigation, Trickle Irrigation, Simulation Models, Computer Software,

Abstract : A complete methodology to predict water distribution in laterals and units of subsurface drip irrigation (SDI) proposed. Two computer programmes have been developed for the hydraulic characterisation of SDI; one for laterals and the other for units. Emitter discharge was considered to depend on hydraulic variability, emitter's manufacture and wear variation, and soil pressure variation. A few procedure to solve the hydraulic calculation of SDI looped network has been established. Moreover, spatial distribution of soil variability was estimated by a geostatistical modeling software i.e. coupled with the computer programmes. Thus the evaluation and performance of laterals and units of SDI can be addressed by changing input variables such as: length and

diameters of laterals; coefficients of emitter's discharge equation; coefficients of variation of emitter's manufacture and wear; local losses at the emitter insertion; inlet pressure; and soil hydraulic properties and its spatial variability. Finally, the methodology has been applied to different scenarios, and some recommendations are outlined for the selection of emitter discharge and inlet pressures.

004536

Author : Ararso, G.S.and others
Title : Planning water management for secure food production in sub-saharan Africa
Source : Irrigation and Drainage
Vol/Iss/Mth : 58(5),Dec Year : 2010 Pages : 509-521
Keywords : Yield,Water management,Drainage,Subsaharan Africa,Food security,
Abstract: This paper analyses the development of water management scenarios to improve food production in the region. Six sample countries-Cameroun, Democratic Republic of the Congo, Ethiopia, Nigeria, South Africa and Sudan-were considered for the analysis. Three water management scenarios were considered; focus on rained agriculture, focus on irrigated agriculture and a mixed scenario.The results of the analysis show that, with proper water management approaches, food security in the region is achievable.

004537

Author : Frija, A.and others
Title : Assessing the efficiency of irrigation water users' association and its determinants; evidence from Tunisia
Source : Irrigation and drainage
Vol/Iss/Mth : 58(5),Dec. Year : 2009 Pages : 538-550
Keywords : water users' association, Irrigation efficiency, Tunisia,
Abstract : This article analyses the efficiency of water users' associations (WUAs)in the Cap Bon region of Tunisia and studies its main determinants. The analysis is performed in two stages.First,the efficiency is measured via the main parametric "data envelopment analysis" (DEA)technique.The DEA models are constructed not only to assess the overall WUA efficiency but also to evaluate the management and engineering sub-vector efficiencies separately through a mathematical modification in the

initial DEA model. In a second stage critical technical and organizational determinants of efficiencies are assessed using a Tobit model. Results show that on average, 18.7 percent of the used inputs could be saved if the WUAs operated on the frontier.

004544

Author : Rodriguez-Sinobas, Leonor and others
Title : Water Distribution in Laterals and units of subsurface drip irrigation II : Field evaluation
Source : Journal of Irrigation and Drainage Engineering
Vol/Iss/Mth : 135(6), Nov-Dec

Year : 2009 Pages : 729-738

Keywords : Water Distribution Systems, Hydraulics, Trickle Irrigation, Subsurface Drip Irrigation,

Abstract : The performance of drip irrigation and subsurface drip irrigation (SDI) laterals has been compared. Two emitter models (one compensating and the other non compensating) were assessed. Field tests were carried out with a pair of laterals working at the same inlet pressure. A procedure was developed that recorded head pressures at both laterals extremes and inlet flow during irrigation. Both models showed similar behaviour and soil properties affected their discharge. On the other hand, the performance of the field SDI unit of compensating emitters was characterized by measuring pressures at different points and inlet flow. Finally, the distribution of water and soil pressures in the laterals and the unit were predicted and irrigation uniformity and soil pressure variability were also determined. Predictions agreed reasonably well with the experimental observations. Thus, the methodology proposed could be used to support the decision making for the design and management of SDI systems.

004545

Author : Mailapalli, D. R. and others
Title : Physically based model for simulating flow in furrow irrigation I: model development
Source : Journal of Irrigation and Drainage Engineering
Vol/Iss/Mth : 135(6), Nov-Dec

Year : 2009 Pages : 739-746

Keywords : Furrow Irrigation, Hydraulic Models, Mathematical Models,

Abstract : In this article, a physically based furrow irrigation model was presented for simulating flow in irrigated furrows under both uniform and layered soils. The model consisted of an overland flow and an infiltration module that are modeled using analytical solution of the zero inertia and the green and Ampt (one dimensional and two dimensional infiltration equations) equations, respectively. Furthermore, the infiltration was also modeled using the kostiakoe-lewis infiltration equation. The model considered all possible furrow shapes and included graphical user interface. The developed model was evaluated using the field data and the model performance was discussed in the second part of the article.

004546

Author : Mailapalli, D.R. and others
Title : Physically based model for simulating flow in furrow irrigation II: model evaluation
Source : Journal of Irrigation and Drainage Engineering
Vol/Iss/Mth : 135(6), Nov-Dec

Year : 2009 Pages : 747-754

Keywords : Furrow Irrigation,Hydraulic Models,Sensitivity Analysis,

Abstract : In this study, the physically based furrow irrigation model presented in part I was evaluated using the experimental data collected from a field plot consisting of 40-m-long free drained furrows of parabolic shape and having a top width of 0.30m, a depth of 0.15m, and a slope of 0.5 percent. The irrigation experiments were carried out with a constant inflow of 0.2-0.5/s-1 and 0.3-0.7/s-1 on bare and cropped fields, respectively. The field data pertaining to furrow cross section, advance and recession times, water depth and velocity, and run-off rate and volume were collected from the irrigation experiments. The test results of the model suggested that the model can be used as a tool for designing and managing furrow irrigation.

004547

Author : Perez Urrestarazu, L and others
Title : Quality of service in irrigation distribution networks: case of Palos de-la Frontera irrigation district (Spain)

Source : Journal of Irrigation and Drainage Engineering
Vol/Iss/Mth : 135(6), Nov-ec Year : 2009 Pages : 755-762
Keywords : Water Distribution Systems, Irrigation
Systems, Spain, Case Study,

Abstract : A methodology based on indicators was developed to study the quality of service provided in irrigation distribution networks. The indicators were divided into network descriptors and operational indicators, some calculated periodically and others in real time. The methodology has been applied to the Palos de la Frontera irrigation district (Spain) using information on flows, volumes, and pressures collected via remote metering devices linked to a central computer database. The results showed that the service provided in the district has good quality in terms of flow adequacy, distribution efficiency, and pressure and supply reliability. Problems dealing with the remote control system have been identified. Categories for the indicators have been established, studying the percentage of control points included in each and their probability of occurrence. The methodology is useful to determine the main problems in a distribution service and areas in the network which need improvement.

004550

Author : Hirve, Nand kishore; Shinde, Vijendra
Title : Kapashiche pani vyavasthapan (Marathi)
Source : Baliraja
Vol/Iss/Mth : 46(5), May Year : 2010 Pages : 79-83
Keywords : Cotton, Water Management,

004553

Author : Nerozin, Sergey

Title : Assessment of efficiency of "Integrated water resources management in Fergana valley" project impact
Source : Water and Energy International
Vol/Iss/Mth : 67(1),Jan-Mar Year : 2010 Pages : 19-22
Keywords : Water productivity,Water use efficiency,
Abstract : The objective of given work is to assess project's impact on productivity and efficiency of irrigation water use in Fergana and Andizhan provinces,Republic of Uzbekistan at a level of each province,Rayons,selected water users associations,demonstration plots,and individual farms located near the areas.The Paper summarises data collected on strategic crops,such as cotton and grain.

New Arrivals

Author	Title	Shelf mark
Talathi J.M.& Naik U.G.	Introduction to Agricultural .Economics Agribusiness management	338.1/TAL/NAI
Singh Karan & Jakhar Mohanlal	Medicinal herbs spices: Scientific eco farming technology	581.634/SIN/JAK
Agarwal Sandhya	Bio analysis & Bio sensors in Agriculture science	630/AGA
Sarda D.P.	Contract Farming And Farmers In India	630.715/SAR
Reuter D.J.&Robinson J.B.	Plant Analysis :An Interpretation Manual	581.5/REU/ROB
Shah S.A.& ICAR	Forestry for people	634.9/SHA?ICAR
Mehra R.K.& ICAR	Text Book Of Soil Science	631.4/MEH/ICAR
Paliwal Krishna V.& ICAR	Aamliya Mrudao ke gun	H 631.416/PAL/ICAR
Singh R.D.& ICAR	Erandi	H634.9/SIN/ICAR
Mehta Prakash & ICAR	Krishi vipanan	H338.13/MEH/ICAR
Rao & ICAR	Banana	634.772/RAO/ICAR
Pande & ICAR	Grapes In India	634.8/PAN/ICAR
Trivedi & ICAR	Home Gardening	635.98/TRI/ICAR
Mukherjee & ICAR	Orchids	635.93415/MUK/ICAR

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Calendar of Events

Date & Venue	Theme	Organization	Contact
2010-2011 Hydrabad	NCB Training programme	Center for continuing education Services National Council for Cement and Building materials	Centre for Continuing Education Services National Council for Cement and Building materials NCB Bhavan Hydrabad 500 008 (A.P.) E-mail hyd2_ncbhrc@bsnl.in , Hyd2_ncbhyd@bsnl.in
23 – 27 Oct.2010. New Delhi	ISRM International Symposium 2010 & 6 th Asian Rock Mechanics Symposium	Central Board of Irrigation And Power, New Delhi	Member Secretary, Indian National Group of ISRM Email:uday@cbip.org
18 – 19 Dec 2010 New Delhi	International Conference on “Transmission system Development in Access to innovative Technology”	Central Board of Irrigation And Power, New Delhi.	Central Board of Irrigation And Power New Delhi E.Mail:cbip@cbip.org
2010-2011 Roorke	39 th International Postgraduate Course/P.G. Diploma/M.Tech (Hydrology) Beginning July 20, 2010	Department of Hydrology Indian Institute of Technology Roorkee – 247 667, India	Professor & Head Department of Hydrology Indian Institute of Technology Roorkee – 247 667, India E-mail hydro@iitr.ernet.in , hydrology.iitr@gmail.com

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