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CONTENTS

28/6/99

- NATION MATTERS
 - NW.....3
 - MEET YOUR SUGAR KING.....5
 - MECHANIZATION OF SUGAR CANE CULTIVATION
 - Dr.M. Mahalingam.....6
 - SUGAR: SOME THOUGHTS
 - M. Manickam.....8
 - SUGAR WILL BE OUT OF CRISIS
 - PAS.....10
 - AN INTERVIEW WITH A CANE FARMER.....13
 - SUGAR OUTPUT AND IMPORTS.....14
 - DUMPING OF SUGAR.....15
 - WASTE MINIMISATION CIRCLES
 - Paul Othof.....17
 - MORE JUICE, NO TAKERS?
 - Mahesh Kulkarni.....18
 - OPTIONS FOR CO-GENERATION IN SUGAR INDUSTRIES
 - P. Venkatchalam.....20
 - NEW PLANTING METHODS IN SUGARCANE AND RED ROT DISEASE MANAGEMENT
 - R. Viswanathan and P. Samiyappan.....21
 - DEVELOPMENT OF SUGAR INDUSTRY.....23
 - MICRONUTRIENT MANAGEMENT FOR BETTER SUGARCANE YIELD AND SUGAR RECOVERY
 - Dr.J.P. Paul, Dr.H.D. Jadhav, Dr.A.G. Shide, Dr.M.D. Patil.....27
 - SUGAR NEWS ABROAD.....29
 - ROLE OF MOLASSES IN ANIMAL FEED
 - Gireesh, N. Maradgi, Joginder S. Malik, Pawan Kumar.....33
 - BY - PRODUCTS OF THE CANE SUGAR SUGAR INDUSTRY.....35
 - AN INTERVIEW WITH DR. PALANIVELU.....36
 - BOOK REVIEW.....38
 - BE GOOD AND DO GOOD.....39
 - NEW ADVANCES IN LAPAROSCOPIC SURGERY.....41
 - SPOTLIGHT: THE DEPARTMENT OF GASTROENTEROLOGY.....42
 - VEGETARIANISM - SOME ASPECTS
 - MV.....43
 - HERBAL TEA
 - S.D. Chiblotia.....44
 - HOW TO MAKE TOFU
 - Goswami D. J. L.....45
 - THE ELEVENTH FINANCE COMMISSION
 - Dr.C. Rangarajan.....47
 - POST HARVEST TECHNOLOGIES TO EXTEND THE SHELF-LIFE OF SAPOTA FRUITS DURING TRANSIT
 - T. Damodaran, S. Anbu, R.S. Arhagiamanavalan and P. Venilla.....48
 - INDIA - "THE AWAKENING GIANT"
 - Heinrich-Dieterich Dieckmann.....49

• CO-2 FENUGREEK - A HIGH YIELDING NEW VARIETY <i>T. Thangaraj and A. Ramar</i>	50
• A GREAT SCHOLAR PASSES AWAY <i>MM</i>	51
• PALANI GOUNDER HIGHER SECONDARY SCHOOL <i>K. Sathiyaraj</i>	53
• RANDOM THOUGHTS <i>MM</i>	55
PHYSIOLOGICAL MALADIES AND REMEDIES IN GRAPES <i>D. Vijayalakshmi and P.S. Sathivasan</i>	57
• A WAY TO SAVE COCONUT TREES <i>Dr.R. Manian and Dr.K. Kathirvel</i>	59
• BIOGAS - FUEL FOR THE FUTURE <i>F. Magdaline Ejeeva Emeraldi, R. Shanthi and M. Singarevottu</i>	60
• BRAZILIAN HORTICULTURE: A LESSON FOR INDIA <i>Dr.L. Venkatasrajanam</i>	61
• ROLE OF WOMEN IN NON-WOOD RESOURCE MANAGEMENT PROGRAMMES <i>Meenu Sood and Anil Sood</i>	62
• "PEANUT BUD-NECROSIS" IN GROUNDNUT CULTIVATION <i>M.P. Basavarajappa, V.R. Kulkarni, M.S. Patil and M.S.L. Rao</i>	63
• STRATEGIES TO BE ADOPTED IN POST-HARVEST HANDLING OF FRUITS AND VEGETABLES <i>D.R. Patil, S.M. Mantur, and H.B. Patil</i>	64
• PROBLEMS IN VITICULTURE <i>M.R. Deshmukh</i>	65
• ALLELOPATHY AS A WEED CONTROL STRATEGY <i>M. Arnecha</i>	66
• SCOPE OF FERTIGATION IN INDIA <i>M. Mahalakshmi and Dr.N. Kumar</i>	67
• PEOPLE'S AGRICULTURAL FARM ECOLOGICAL FARMING PROMOTION <i>P. Anila Selvan</i>	69
• CULTURE IN EUROPE.....	70
• HUMAN RESOURCE DEVELOPMENT IN ENERGY MANAGEMENT <i>M. Kallem and Kodeeswara Ramanathan</i>	71
• DISEASE CONTROL BY COMPOST <i>C. Ganesha, Dr. B. Uthyalannar, Dr.D.J. Pandian and Dr.V. Veerabadrar</i>	72
• PARALLEL LINES OF CREDIT CARDS AND DEBIT CARDS <i>Mrs.K. Thiripurasundari</i>	73
• TECHNOLOGY FOR INDIAN MASSES - ISSUES AND PERSPECTIVES <i>Dr.Mrs.M. Jaya Rathnam</i>	75
• PACIFIST MEMORIAL FOR MAHATMA GANDHI IN U.S.A. <i>V. Muthuswami</i>	77
• COMPOSTING COIRPITH USING BIOCONTROL AGENTS <i>V. Ramanoorthy, B. Meena and Dr.M. Muthusamy</i>	78
• TEAM SPIRIT AND SENSITIVITY TO OTHERS.....	79
• BOOK REVIEW <i>CSM</i>	79
• OUR READERS SAY.....	80

HUMAN RESOURCE DEVELOPMENT IN ENERGY MANAGEMENT

M. Selvam and Kodeeswara Ramanathan

Human Resource Development (HRD) is a function of both the growth of an individual and organisational development through successful coping with the internal and external environments. Effective human resource planning and policy extend the conventional technology for forecasting future needs. Manpower planning is an opportunity to determine current and future needs of manpower to suit varied requirements. This, in turn, links with successive planning process which provides an opportunity to develop individuals with potential for future position/status.

Energy Management

Energy Management involves technology engineering inputs as well as managerial inputs. India energy scene is replete with continuing energy shortage with no promise of foreseeable future. The shortage of energy acutes in all important sectors like power etc., and as a result Indian economy faces stagnation. The role energy in our economic development is very vital and the wheel of economic progress cannot move without the essential input namely Energy. It is a well known fact that identification of new sources for energy including alternative resources normally take many years and there is no guarantee that such new/alternative resources may fulfil the current needs of the energy in India. Hence there has to be a greater emphasis on the energy management especially energy conservation. In the process of energy conservation, the skilled and technical knowledge of personnel plays a vital role in addition to design and operation of the plants.

Status of Industries at Rural India

In India many industries are located in rural areas where industries suffer due to lack of industrial infrastructure. Hence, resource available at rural areas are used for the supply of energy to run industry. But the workers of small and medium scale industries in rural areas are inadequately trained to cope up with effective energy management. They suffer for want of adequate training facilities. Only a few specialists are employed to monitor the entire energy management at the national level and no wonder that the concept of energy conservation is totally ignored at the rural level. Even simple measures for saving energy costs are not adopted in small and medium scale industries.

Analysis of many studies have shown that the main causes of energy wastage are inefficient personnel and inadequate management training given to them. There is no second opinion that improved energy management in rural industries may lead to improved quality of products with effective energy end uses. Therefore, there is need to strengthen the human resource and orient the research, design and development programme towards evolving new types of energy efficient equipment technology not only for process modernisation but also for harnessing new and renewable energy resources.

Importance of Human Resource in Energy Management

In a day to day operation, the personnel at various level faces a lot of problems in energy management. Competent personnel can resolve the problem of energy management and

therefore, any organisation should pay proper attention to the following aspects.

- Planning for Recruitment, Selection and Placement
- Planning for Education and Training.
- Planning for Performance Appraisal and Motivation, and
- Planning for Awareness programme.

In addition to the above, the success of any organisation depends on how money, machine, material and marketing are effectively handled.

Planning for Recruitment, Selection and Placement

Recruitment, selection and placement are essential ingredients of a successful energy management programme. The problem is how to organise the energy conservation activities so that recruitment policy could be evolved. It is the duty of an organisation to maintain an adequate work force in energy department and therefore, recruitment should include "inter alia" the bias towards energy-saving habits. Recruitment can be made through internal or external sources but there should be comprehensive selection policy for placement of personnel in the right places

Planning of Education and Training

Education and Training play an important role in achieving energy conservation. They include pre-experience programmes. These training programmes help rational use of energy. Indian Industries suffer due to lack of education and good training. Since there is no adequate number of trained energy technicians, engineers, managers etc., good education and quality training

programmes are to be planned.

Planning for Performance Appraisal and Motivation

Appraisal of the technical and engineering aspects of energy management needs to be done continuously. Our industries are saddled with old plant and machinery and use of inefficient personnel in many cases. However, the result of appraisal is to be informed to the personnel concerned, so that they can try to improve their performance. Saving in energy can be made to the tune of 15% - 30% through motivation,

Planning for Awareness Programme

Conservation of energy could be achieved through better planning of awareness programme. Awareness programme includes information or knowledge about new developments and techniques in energy management.

Conclusion

The appropriate ways and means to control energy cost as well as energy demand in India are to be evolved; a technically feasible and economically viable programme on energy management is essential. It is no doubt

that selective targeted approach will yield best results. Further proper planning in terms of personnel placement, education and training, performance appraisal and motivation are to be developed immediately by all industries. To conclude, energy management and conservation are important activities at corporate level. It helps us in reducing cost of output. □

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DISEASE CONTROL BY COMPOST

C. Ganeche, Dr.B. Uthyakumar, Dr.B.J. Pandian and Dr.V. Veerabadrán. ✉

The environmental degradation due to continuous use of pesticides has received much attention on the biological control of fungal plant pathogens. It is known that the composted organic material, besides maintaining soil fertility also prevents the disease incidence caused by several plant pathogens. Balanced nutrition with compost has been considered fundamental as it maintains soil health and induces plant resistance mechanism. There is considerable evidence that various types of composts obtained from agricultural wastes suppressed *Rhizoctonia solani*, *Fusarium oxysporum*, *Pythium* etc., in different crops.

Soil amended with composts, seed treatment and foliar spray by liquid extracts of composted material have been shown to suppress the development of fungal leaf pathogens.

COMPOSTED SOIL AMENDMENTS

It is observed that there is relationship between soil borne diseases and the organic matter content in the soil. The results from many experiments showed

that powdery mildew of barley and wheat seedling were controlled by compost obtained from agricultural wastes. Dittmer et al (1990) revealed that number of powdery mildew pustules on leaves were significantly reduced by 39% when it is amended with compost compared to control. But disease incidence was suppressed to 95% when equal amount of compost and soil were used as a growth substrate.

The drawback in this method is a high ratio of composted material needed for soil. It may be applicable to high value green house plant, but not to field crops, where the feasibility of using high amount of composts are economically impractical. Hence an alternative technology to reduce the amount of organic composts needed to suppress plant disease have been examined such as seed treatment, seed pelleting with compost and foliar spray of compost extracts.

SEED TREATMENT

The soil borne damping off disease caused by *Phthium* sp. can be effectively controlled by seed treatment with compost extracts. It may be due to the

metabolites produced by micro-organisms in compost extract during the incubation period. By this method seed germination and root length also significantly increased.

Seed treatment can be done by incubating 1 Kg of compost mixed in 4 lit. at 20°C for 5-10 days and mixing the crop seed with this filtrate for 30 minutes followed by drying.

FOLIAR SPRAY

The compost extracts can also be used to suppress plant diseases *Plasmophora viticola* in Grape, *Botrytis cinerea* in Strawberry and *Phytophthora infestans* in Potato by foliar spray of compost extracts obtained from cattle manure and horse manure. One kilogram of 4-6 month old moistened compost is mixed with 5-10 lit. of water and incubated at 20-25°C for about 5-10 days and the filtrate can be applied to the foliage with ordinary spray equipment. Suppressiveness induced by compost extract on foliar pathogen was protective and not curative. □

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