

**Report of Agricultural Engineering Subcommittee of NAU,
To be presented in Joint 16th AGRESO Meeting on May 16, 2020**

Subcommittee Meeting held on : February 20, 2020

Day: Thursday

Time : 9.00 to 17.30

Venue: Conference Hall of College of Forestry, ACHF, NAU, Navsari

**Summary of Technical Programmes Presented in 16th Agricultural Engineering Subcommittee
Meeting of AGRESO of Navsari Agricultural University**

S. No.	Department / Unit	Faculty strength	Recommendation	New Technical	Ongoing	Total
1	FMP, CAET, Dediapada	4	0	0	5	5
2	SWE, CAET, Dediapada	3	0	0	6	6
3	PFE, CAET, Dediapada	3	0	0	2	2
4	REE, CAET, Dediapada	4	1	0	2	3
5	AE, NMCA, Navsari	3	1+1 [#]	2+2*	3	9
6	Statistics, NMCA, Navsari	1	0	0	1	1
7	AE, CoA, Waghai	2	1	0	2	3
8	AE, CoA, Bharuch	1	0	0	1	1
9	SWMRU, Navsari	2	1	1	2	4
10	PHT &PE, ACHF, Navsari	3	1	4	8	13
11	NRM, COF, ACHF, Navsari	1	0	0	2	2
12	NRM, Hort., ACHF,	1	-	-	-	-
12	AABMI, Navsari	1	1 [#]	0	0	1
13	MSRS, Surat	1	0	1	0	1
	Total	30	5+2[#]	8+2*	34	51

Recommendation 16.2.1

Evaluation of Solar tunnel dryer for feasibility of green leaves drying for herbal product in Dediapada.

Department of Renewable Energy Engineering , CAET, Dediapada

Semi circular solar tunnel dryer (covered with UV stabilized 200 micron polythene sheet) having 30 m² area (10m x 3m x 2m size) is recommended to farmer community in Dediapada for low temperature drying of *sargava* and *Mahendi* leaves as well as *Keshuda* flowers for herbal products with 33 % less drying time compare to sun drying with higher net present worth.

ખુલ્લામાં સુકવણીની તુલનામાં 33% સમયની બચત અને ચોખ્ખી વધુ આવક સાથે હર્બલ ઉત્પાદન માટે સરગવા અને મહેંદીના પાન તથા કેસુડાના ફૂલની ઓછા તાપમાને સુકવવા માટે 30 ચોરસ મીટર ક્ષેત્રફળની સૌર અર્ધગોળાકાર ટનલ ડ્રાયર (૧૦ મી. X ૩ મી. X ૨ મી., ૨૦૦ માઈક્રોન યુ.વી. અવરોધક પોલીથીન) ની ખેડૂતોને ભલામણ કરવામાં આવે છે.

Recommendation 16.2.2 :

Modification of NAU designed hold-on type power operated paddy thresher

Department of Agricultural Engineering, NMCA

Withheld

- House formed the following release committee for recommendation:

- Er. P.R. Pandey, Dean, CAET, Dediapada
- Dr.Hitesh Sanchvat, Asstt. Prof., FMP, CAET, Dediapada
- Dr. V.P.Usadadia, Research Scientist, SWMRU, NAU
- Er. B. M. Soliya, Asstt. Res. Scientist. SWMRU, NAU
- Dr. V.R. Naik, Assoc. Res. Scientist NARP, NAU
- Er. V.S. Patel, Asstt. Prof. CAET, Dediapada

It is recommended that the modified hold on type paddy thresher having capacity 101.50 kg/h operated by half horse power electric motor and costing Rupees twenty one thousand and giving labour saving is released for the benefit of farmers. Its cost of operation is Rs 50 per hour, as per the prices of 2020.

Recommendation 16.2.3 :

Influence of land configuration on productivity of Sorghum (*Sorghum bicolor* L.) Crop in Vertisol of South Gujarat.

Department of Agricultural Engineering, NMCA

The farmers of South Gujarat heavy rainfall zone growing rabi sorghum are recommended to adopt improved land configuration system i.e. double row planting system with laser leveled field to improve the crop yield, irrigation water saving and higher net return.

ખેડૂતોપયોગી ભલામણ

દક્ષિણ ગુજરાતનાં વધુ વરસાદીય વિસ્તરના જુવાર પકવતા ખેડૂતોને વધુ ઉત્પાદન, પિયત પાણીની બચત તથા વધુ ચોખ્ખો ફાયદો મેળવવા માટે લેસર પદ્ધતિ વડે જમીન સમતલ કરી વાવેતર કરવાની ભલામણ કરવામાં આવે છે.

Recommendation 16.2.4 :

Assessment of Water Resources of Navsari and Dang District using Water Quality Index and GIS *Department of Agricultural Engineering, College of Agriculture, Wagahai*

Analysis of surface water quality using Water Quality Index and GIS indicated that water from 25.05% area of Navsari district in Pre-monsoon and 32.78% area in Post-monsoon is 'unfit for drinking'; whereas in Dang district, water from 0.83% area in Pre-monsoon and 2% area in Post-monsoon is 'unfit for drinking'. 'Good' quality surface water is available in 58.43% area of Dang district in Pre-monsoon and 64.43% area in Post-monsoon, whereas, it is less than 1% in Navsari district in both seasons.

Water samples plotted on US Salinity diagram indicated that, samples of Navsari district under C3S4 and C4S4 category are 'poor zone of water quality' and this water cannot be used for irrigation on soils with restricted drainage and requires special management for salinity control. Surface water in other locations of Navsari and all locations of Dang district belongs to 'acceptable to suitable' class of water for irrigation. Hence, it is informed to prefer GIS technology with WQI method and US Salinity diagram for water quality monitoring and subsequent evaluation of effectiveness of regulatory programmes.

Recommendation 16.2.5 :

Effect of different colour shade nets on biomass and quality of leafy vegetables

Soil & Water Management Research Unit

The farmers of South Gujarat heavy rainfall Agro climatic zone who intended to grow fenugreek / coriander / garlic crops for green leafy vegetable purpose during winter season (last week of November to first week of January) in their established net house having colour shade net are advised to prefer crop under suitable colour shade net with 50 % shading for getting higher production and good quality green biomass.

Crop	Shade net colour
Fenugreek	Yellow / white / blue / green
Coriander	Yellow / red / white
Garlic	Yellow / white / red

ખેડૂત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા ખેત આબોહવાકીય વિસ્તારમાં શિયાળા દરમિયાન (નવેમ્બરના છેલ્લા અઠવાડિયા થી જાન્યુઆરીના પહેલા અઠવાડિયા) હયાત રંગીન શેડ નેટ ધરવતા નેટ હાઉસમાં લીલા પાંદડાવાળા શાકભાજી મેથી / ધાણા / લસણ પાકની ખેતી કરવા ઈચ્છતા ખેડૂતોને ગુણવત્તાયુક્ત વધુ ઉત્પાદન મેળવવા પાકવાર નીચે મુજબના રંગની ૫૦ ટકા શેડીંગ વાળી નેટની પસંદગી કરવાની સલાહ આપવામાં આવે છે.

પાક	શેડ નેટનો રંગ
મેથી	પીળો / સફેદ / ભુરો / લીલો
ધાણા	પીળો / લાલ / સફેદ
લસણ	પીળો / સફેદ / લાલ

Recommendation 16.2.6 :

Development of technology for ready to use freeze dried tomato (*Solanum lycopersicum* L.) slice

Center of Excellence on Post Harvest Technology & Process Engineering, ACHF

The processors are recommended that, to prepare freeze dried tomato slices by slicing it in 10 mm thickness, blanching at 80 °C for 2 min, freezing at (–20 °C) for 6h followed by freeze drying under 760 mm of Hg vacuum at 50 °C drying temperature and packing in 75 micron HDPE bags to store up to 3 months without altering quality with higher net returns.

ભલામણ

પ્રસંસ્કરણકારોને ભલામણ કરવામાં આવે છે કે ટામેટાની ફીઝડ્રાઇડ કાતરી બનાવવા માટે તેને ૧૦મી.મી. જાડાઈમાં કાપી, ૨મીનીટ માટે ૮૦°સે. એ બ્લાન્ચીંગ કરી, ૬કલાક માટે (–૨૦°સે.) એ થીજવી દીધા બાદ, ૭૬૦મી.મી. પારાના શૂન્યાવકાશે ૫૦°સે. ઉષ્ણતામાને સુકવણી કરી ૭૫માઇક્રોનની એચ.ડી.પી.ઇ. કોથળીમાં પેક કરવાથી કોઇપણ જાતની ગુણવત્તા બદલાયા વગર ૩મહીના સુધી સારા વળતર સાથે સાચવી શકાય છે.

Recommendation 16.2.7 :

A Study on technical feasibility and development of online principal approval system for finance and purchase under SAUs.

Department of Information & Communication Technology, AABMI

- The House approved the proposal of investigator for demonstration to the officer's of university for further decision making, data collection, analysis and recommendation.
- *The financial approval system is developed in open source technologies which is recommended for implementing financial approvals across the university. The system could also be integrated with new NAU financial accounting system.*

List of New Technical Programmes

S.No.	Title of Study	Department	Remark
16.3.1	Design and development of tractor hydraulic operated cone penetrometer	REE, CAET, Dediapada	Approved
16.3.2	Evaluation of mole drain on okra crop	Department of Agricultural Engineering, NMCA, Navsari	Filler trial
16.3.3	Feasibility test on inclined plate type seed cum fertilizer drill on direct sowing rice (aerobic condition)		Filler trial
16.3.4	Effect of different establishment methods on rice crop (<i>Oryza sativa</i> L.) and evaluation of CERES rice model		Approved
16.3.5	Development and testing of runoff water filter with semi-auto flushing system for ground water recharge	Soil and Water Management Research Unit	Approved
16.3.6	To identify maturity and harvesting indices as non-destructive index and relate with physico-chemical parameters of Sonpari mango.	Center of PHT & PE, ASPEE	Approved
16.3.7	To standardize storage parameters for Sonpari mango to extend shelf life.		Approved
16.3.8	To standardize forced ripening process using ethylene gas in ripening room for Sonpari mango.		Approved
16.3.9	To design and develop packaging box for Sonpari mango.		Approved
16.3.10	Evaluation of the drip irrigation system on crop yield, water use efficiency & growth of sorghum crop in south Gujarat condition	Main Sorghum Research Station, NAU, Athwa Farm, Surat	Approved

Ongoing Studies (Modifications)

NTP No.	Title	Department	Status of Experiment
15.5.3.31	Design and development of economical manual harvesting tool	Department of FMPE, CAET, Dediapada	The PI has requested that Ergonomical observation of heart rate will be recorded and other observations such as oxygen consumption, energy consumption will be calculated with empirical equation by correlating with heart rate. House approved the request.
14.5.3.49	Development of tea extract based hard boiled candy	Centre of Excellence on PHT & PE, ASPEE, Navsari	The PI has requested to modify the process of tea candy making, using base material as banana pseudo-stem centre core. House approved the request.

Sd/-

(P. K. Shrivastava)
Convener &
Principal & Dean
ACHF, NAU, Navsari