भाकृअनुप - भारतीय गन्ना अनुसंधान संस्थान
रायबरेली रोड, पोस्ट-दिलकुशा, लखनऊ – 226 002 , (उ0 प्र0)
ICAR - Indian Institute of Sugarcane Research
Raibareli Road, Post- Dilkusha, Lucknow – 226 002, (U.P.)

EXPRESSION OF INTEREST (EOI)
FOR
PROVIDING INCUBATION SUPPORT TO STARTUPS/INCUBATES
AT
AGRI-BUSINESS INCUBATION CENTRE ICAR-IISR, LUCKNOW

ABOUT

The Indian Institute of Sugarcane Research (IISR), Lucknow was established in 1952 by the erstwhile Indian Central Sugarcane Committee for conducting researches on fundamental and applied aspects of sugarcane culture as well as to co-ordinate the research work done on this crop in different States of the country. The Government of India took over the Institute from the Indian Central Sugarcane Committee on 1st January, 1954. On April 1, 1969, it was transferred to the Indian Council of Agricultural Research (ICAR), New Delhi along with other central agricultural research institutes.

The Indian Council of Agricultural Research (ICAR) has recently assigned the institute with the mission of supporting agri-business incubators through its National Agriculture Innovation Fund (NAIF). ICAR-IISR, Lucknow aims to facilitate the incubation of new startup/entrepreneurs & enterprises for innovative technologies by providing need-based physical, technical, business, and networking support, facilities, and services to test and validate their ventures prior to their successful establishment.

OBJECTIVE

The main objective of the ICAR-IISR Agri-Business Incubation center [ABIC] is to promote setting up of agri-business enterprises based on ICAR-IISR developed technologies/facilities available through business incubation support to the interested and potential entrepreneurs/organizations [SHG/FPO/NGO etc.]. The support is provided in the form of novel technology, leasing of institute Incubation facility including equipment, pilot scale plants, laboratories, library, office rooms, institute meeting and conference rooms etc. and to hand holding is extended to the incubates to facilitate them to successfully setup their enterprise based on IISR technology learnt at IISR-ABIC. The technology-wise details and facilities available in different ABI Units at IISR-ABIC is provided in another document on this site through a link.

INCUBATION PROCESS

1. Acceptance of the Incubate
2. Technological Mentoring Services and Facilities
3. Development of product prototypes
4. Pilot-scale testing of products using IISR facilities/Outsourcing on Pilot Scale
5. Product Improvement
6. The Incubate takes the initiative to launch their business.

INCUBATION STAGES

Stage 1:
Mentors invite you to use their technologies.

Stage 2:
1. Entrepreneurs are invited to express their interest through a website display.
2. Applications are submitted.
3. Interviews/video conferencing with ABI committee members and mentors
4. Incubate Credentials

Stage 3:
Mentors provide brief technology specifics based on the application/video conferencing.

Stage 4:
Recommendation of the committee

Stage 5:
Approval from competent authority

Stage 6:
1. Letter of admission to the selected candidates
2. Acceptance of agreement by the incubate for IISR-ABI
3. Admission fee payment (Rs. 1000/-)

Stage 7:
Technology package from mentors

Stage 8:
Finalization of License, royalty formalities and work share

Stage 9:
Incubation phase

Stage 10:
Work progress (monthly/ quarterly/yearly)

Stage 11:
Completion of legal formalities before technology handover

Stage 12:
Exit of incubate

Stage 13:
Start of business by incubate

AGRI BUSINESS SERVICES PROVIDED BY ICAR-IISR

Technological Mentoring

Scientists working in ICAR-IISR will provide mentorship to the entrepreneurs in their respective areas of expertise during incubation period at the institute. Mentors will help in ideation, prototype development, product refinement, pilot scale up gradation.

Capacity Building and Training

Institute has well developed laboratories and infrastructure for conducting hands on training on sugarcane based technologies. Entrepreneurs can come with their idea and can develop prototype and product on laboratory scale. Further product can be refined based on feedback from concerned stakeholders.

Intellectual Property Management

ICAR-IISR will help entrepreneurs in protection of intellectual property issues arise during the period of incubation at institute. Mentors will help in filing the patent of process/product developed during incubation.

Funding Facilitation

Entrepreneurs will be helped during preparation of Detailed Project Report (DPR) of their business plan, pitch preparation and project presentation to attract angel investors/ financial organizations. Linkages will be developed among entrepreneurs and government funding agencies.

Incubation Services

Following service will be provided to the entrepreneurs at the incubation center-

a. Technology mentorship
b. Computer and internet services
c. Office space
d. Laboratory scale production facility
e. Access to Proposed Data Analytics System
f. Access to Library
g. Printing (To be paid separately)
h. Drinking Water
i. Video Conferencing Facility
j. Meeting Space inside Cubicles (Non - Chargeable)

Business Development and Support

ICAR-IISR will provide technological support to the startups during incubation and after exit of incubate for further up gradation and expansion of business.

AREAS OF ENTREPRENEURSHIP

1. **Jaggery for Sugarcane**
2. **Farm Machinery for Sugarcane**
3. **Pest Control for Sugarcane**
4. **Bio Control for Sugarcane**
5. **Seed for Sugarcane**
6. **Tissue Culture for Sugarcane**

WHO CAN APPLY

1. People with innovative and novel ideas to be translated into entrepreneurship.
2. People willing to start entrepreneurship on available IISR technologies.
3. Entrepreneurs/enterprises who are already running their startups or businesses and want to further refine, modify, advance and value addition in their products.
4. Enterprises want to add new ventures.
5. People/firms which want IISR services/facilities (consultancy, mentorship, technical and IP management etc.), support and/or handholding.

ELIGIBILITY

Anyone who is keen and has passion to set up an Agri-Business enterprise can apply. Applicants can be Individual(s)/SHG/FPO/society etc. Applicants must possesses requisite basic characteristics of an entrepreneur, leadership, passion, vision, and hard work and commitment with ability to take a novel technology based business idea from scratch to a large scale successful business unit. There is no minimum educational qualification, however candidate should have adequate working knowledge to communicate in Hindi/English as may be required for setting /running such an enterprise. For some of the listed technologies, entrepreneurs may need to first take license of the respective ICAR–IISR technology before joining the using the ABI unit facility.

HOW TO APPLY

Applications are accepted online. Click the link to apply

SIGNING OF AN AGREEMENT

- If selected for using of the IISR ABI Unit facility, the applicant would have to sign a Memorandum of Agreement [MOA] with ICAR-IISR for taking the ABI Unit facility on lease. The agreement would include the registration fee, security deposit and duration of the leasing of facility and other terms & conditions as applicable.
- The progress would be monitored regularly and any violation of terms & conditions of MOA would lead to termination of extended facility.
- After successful utilization of ABI Unit facility, the applicants / entrepreneur are expected to set up their own enterprise based on the technology they had leased in IISR-ABI. Institute would encourage and extend scientific and technical guidance and support to the entrepreneurs for establishing their own enterprise. Some of these supports would free and others on payment basis.
- The decision of the Director, ICAR-IISR, Lucknow in all matters would be final and binding and no correspondence will be entertained in this regard.

TECHNOLOGY DESCRIPTION

Jaggery Technology for Sugarcane

➢ 3 – Pan Furnace

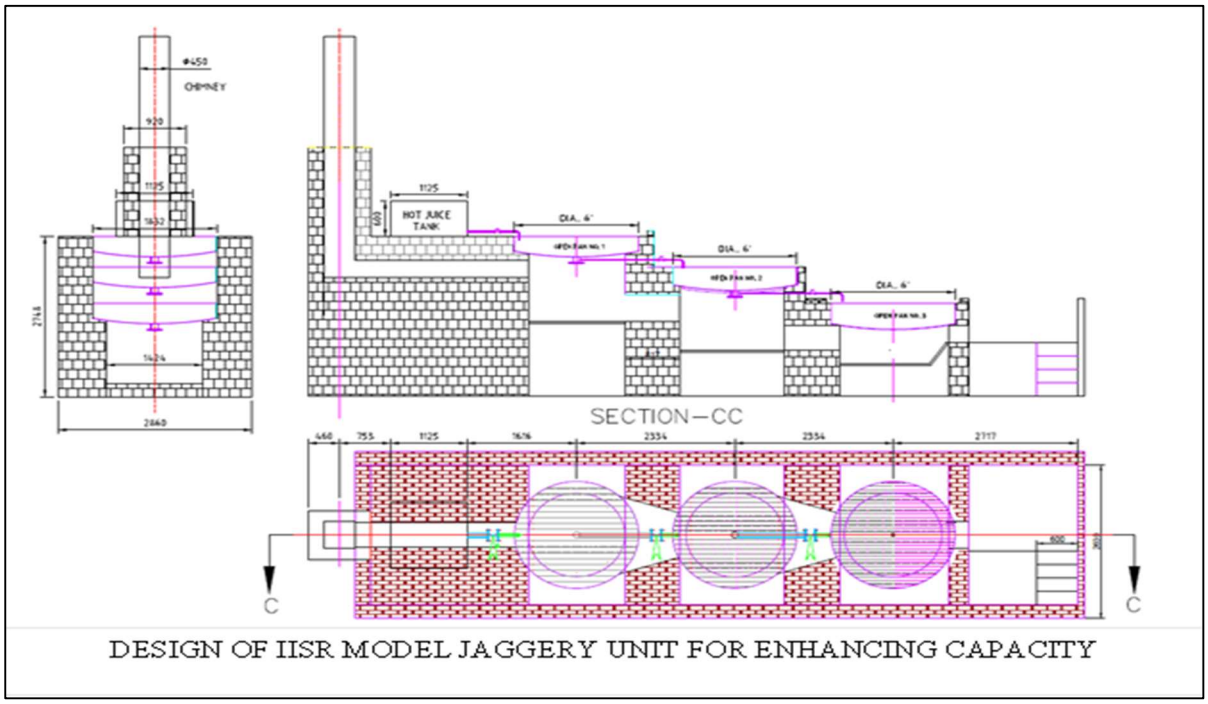
Specification and salient technical features: It consists of three open pans (200 lit. capacity each); one on the combustion chamber for juice boiling (circular with convex bottom of 31.75 mm thickness) and other two at staggered heights for self-emptying of juice by gravity after opening of gate valves (one similar to first with 25.4 mm bottom thickness and 38.1x38.1 mm opening in center connected with 50.8 and 889 mm long GI pipe from bottom of pan for draining out juice, chamber of 1600x1600x50 mm, and second as rectangular gutter pan with convex bottom having 12.7 mm thickness along length) for trapping waste heat going with flue gases and preheating the juice., step grate, rectangular flue passage, chimney made of masonry, bagasse feeding platform and ash pit having stairs after first pan is emptied attaining striking point temperature, the pre-heated juice is transferred into it by gravity drop system and the process continued.

Performance Results: 200 lit. Juice per batch
40kg Jaggery per batch

Impact of Technology: Reduction in fuel consumption, saving of bagasse.

Benefits: Saves Bagasse, energy efficient, provides higher income

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.



DESIGN OF IISR MODEL JAGGERY UNIT FOR ENHANCING CAPACITY

➢ Jaggery Cubes

Specification and salient technical features: Sugarcane juice is extracted, filtered and heated over Jaggery furnace. On heating, mucilaginous extract of vegetative clarificant is added and the scum is removed. Now the juice is vigorously boiled till the temperature reaches to 120-122ºC. Then it is transferred to wooden tray and cooled by continuous pudding. When it starts solidifying it is poured into moulding frames and leveled up with ladle. After about 40-45 minutes when jaggery is set, cubes are removed by dismantling the frame.

Performance Results: Jaggery is very good in taste and quality and has longer better shelf life.

Impact of Technology: Better income to the manufacturer. Attracts consumers, improvement in liking and increased demand for Jaggery

Benefits: It can easily be packed and stored.

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Powder/ Granular Jaggery

Specification and salient technical features: Sugarcane juice is extracted, filtered and heated over Jaggery furnace. On heating, mucilaginous extract of vegetative clarificant is added and the scum is removed. Now the juice is vigorously boiled till the temperature reaches to 120-122ºC. Then it is transferred to wooden tray and cooled by continuous pudding. When it starts solidifying, it is rubbed using ladle and between palms/ wooden plates and made into powder/ granular form. It is then dried under sun, sieved/graded and packed in ploythene packets.

Performance Results: Granular Jaggery is very good in taste and quality and has longer better shelf life.

Impact of Technology: Better income to the manufacturer. Attracts consumers, improvement in liking and increased demand for Jaggery

Benefits: It can easily be packed and stored.

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Liquid Jaggery

Specification and salient technical features: Sugarcane juice is extracted, filtered and heated over Jaggery furnace. On heating, lime (100 gm. lime in 51 water / 100 kg juice) is added to raise the pH from 5.2-5.4 to 6.5-7.0 for coagulation of impurities. After removal of impurities, mucilaginous extract of vegetative clarificant is added phosphoric acid and is vigorously boiled. As soon as the temperature reaches 105-106°C, it is removed from pan, cooled and packed in glass or PET bottles. Addition of citric acid @ 0.04% and 0.1% potassium metabisulphite or 0.5% benzoic acid help in preventing crystallization and increasing shelf life respectively.

Performance Results: Liquid Jaggery stores well for six months

Impact of Technology: Storage loss is reduced and also liquid Jaggery can be made even from late harvested, staled or water-logged canes.

Benefits: Storability is better. It can be used as a substitute for honey and can give better profitability

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Value-added Jaggery

Specification and salient technical features: Value addition to solid Jaggery by inclusion of nutritive substances through puffed rice, gram, sesame and various kinds of nuts (cashew, almond), vitamins, iron, and taste enhancers like chocolate powder will increase demand for this kind of Jaggery. The nutritive value and palatability can be enhanced by preparing different kinds of Jaggery with the addition of puffed rice, gram and groundnut in different proportions of 1:0.75, 1:1, 1:1.25, 1:1.5, 1:1.75 (Jaggery Patti), mixing with wheat flour in proportions 90:10, 80:20, 70:30, 60:40, 50:50 and 40:60 (Jaggery-wheat flour extruded snacks) and mixing with gram flour (Jaggery-besan snacks). The Jaggery with 10% cocoa powder yielded a product (chocolate) which was very much acceptable as a substitute for chocolate. Value added Jaggery will be a cheap source of nutrition to the poor and malnourished.

Performance Results: Value-added Jaggery contains substantial quantity of vitamins, nutrition besides having good taste and palatability

Impact of Technology: Improved palatability of Jaggery and nutritional enrichment for fighting malnutrition, boost immunity and generating higher income to the farmer.

Benefits: Nutrition enrichment would help in fighting malnutrition and increased income to the farmers, entrepreneurs.

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Mechanical Cane Juice Filtration Unit

Specification and salient technical features: The filtration unit consists of a prefilter and four synthetic filters. Each filter is made of plastic cartridge. Inside cartridge, synthetic candle filter media are kept. The diameter and length of the candle is 70mm and 260mm respectively. The raw juice is passed to the unit from one end and filtered juice comes out through other end. A small submersible pump of capacity 800 lit. /hr is used for pumping the juice. The system is operated with an electric motor of 12 watt.

Performance Results: 300lit. /hr of filtered juice 75% of insoluble impurities present in the cane juice is filtered.

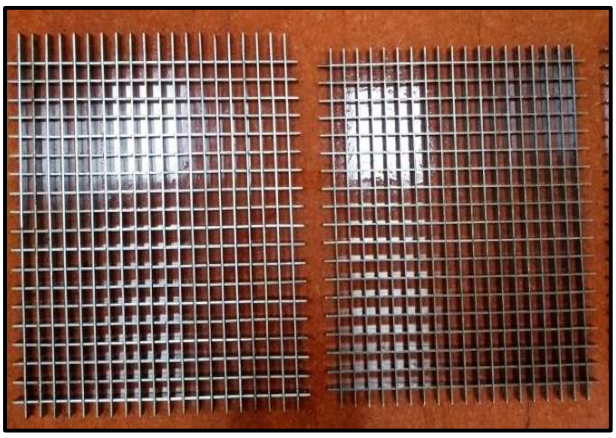
Impact of Technology: Reduction in impurities results in better quality Jaggery

Benefits: Increased income due to better quality Jaggery.

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Molding Frame

Specification and salient technical features: The equipment consists of 20 mild steel flats (710x25x3mm) and 19 mild steel flats (685x25x3mm) with 18 small grooves of 12.5x3.2mm in each flat. The flats are fitted in these grooves. These flats are electroplated to make the surface smooth and shining. A small hole is made at one end of the each flat, in which a steel rod is inserted. Two flats are separated with a cylindrical steel spacer. The fitted molding frame is kept on a wooden platform (lined with aluminum sheet). The equipment is easy to assemble and dismantle.



Performance Results: 7kg Jaggery cubes per batch

Impact of Technology: Farmers have accepted the technology and created good demand

Benefits: Increased income to the farmers

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

➢ Jaggery Drying-cum-Storage Bin

Specification and salient technical features: It is made of GI sheet of 20 gauges (2100x900mm). Towards bottom side, four holes of 10mm diameter are made. These holes are open during summer and closed during monsoon. On bottom, a circular perforated plate having 10 mm diameter holes rests on a cross shaped wooden block (600x250x25mm), which helps in movement of air. The bin is used for drying and storage of Jaggery for of six members for one year and works on the principle of natural air draft.

Performance Results: 100 kg per batch

Impact of Technology: Jaggery safely stored for one year without storage losses

Benefits: Loss reduction, elongated shelf life and increased income to the farmer

Status of commercialization: Commercialized and applicable to sugarcane growing area of the Country.

Facilities at Jaggery Unit

- Crusher shed housing vertical and horizontal crushers for juice extraction
- Furnace house having improved IISR furnaces
- Land for growing vegetative clarificant
- Facility for juice sampling
- Jaggery drying-cum-storage godown
- Juice processing Lab having
- Vacuum oven
- Texture analyzer
- Band sealer with nitrogen flushing
- Mechanical Jaggery drier
- Hot air oven
- Environment control chamber
- Dehumidifier
- Laboratory crushers
- Bomb calorimeter
- Digital refractometer, pH meter, Color meter, Anemometer
- Refrigerator

Farm Machinery Technology for Sugarcane
Developed by the Division of Agricultural Engineering

1. Tractor Operated Deep Furrow Sugarcane Cutter Planter

Introduction

Sugarcane planting comprised of number of unit operations such as cutting of whole seed cane into setts as seed material, deep furrow opening, placing seed-setts in furrows, mixing of fertilizer, application of insecticide over setts and coverage of setts by soil and its light compaction. These operations are arduous, energy and labor intensive and involve human drudgery. There is a need for mechanizing planting operation to save time, labor and cost and also to avoid human drudgery. Moreover, furrow method of sugarcane planting has shown promise in saving of irrigation water due to furrow irrigation, reduced cane lodging and better ratooning due to deep rooting. In view of the above, tractor operated deep furrow sugarcane cutter planter was developed to mechanize sugarcane planting in deep furrows. It performs all the unit operations involved in sugarcane planting including sett cutting simultaneously in single pass and having provision for adjustment of row spacing of 75/90 cm or 100/120/150 cm. It is equipped with deep furrow opener, sharp edged blades to cut whole cane into 350 mm long pieces as seed material, metering device for application of fertilizer and insecticide, soil covering shovels and tamping roller for pressing soil cover.

Specifications

Power source	:	>26 kW Tractor
Number of rows	:	2/3
Row spacing adjustments, cm	:	75/90 or 100/120/150
Cost of the machine, Rs	:	1,25,000
Cost of planting operation, Rs/ha	:	3000
Performance results		
Effective field capacity, ha/h	:	0.20
Field efficiency, %	:	60
Saving in cost of operation over conventional, %	:	60
Saving in labor requirement, %	:	>90 (35 man-d)

Benefits over conventional/traditional practices

This machine performs all the unit operations involved in sugarcane planting including sett cutting simultaneously in single pass.

Status of commercialization

Commercialized and applicable to sugarcane growing area of the country.

2. Tractor Operated Sugarcane Trench Planter

Introduction

The trench planting of sugarcane is considered as a superior planting technique as compared to conventional flat method in terms of irrigation water saving, reduced cane lodging, better ratooning and increase in cane yield. Sugarcane trench planter performs all the unit operations of sugarcane planting in trench paired furrows simultaneously in single pass. It is equipped with trench opener, sharp edged blades to cut whole cane into 350 mm long pieces as seed material, metering device for application of fertilizer and insecticide, soil covering shovels and tamping roller for pressing soil cover. The furrow opening unit is equipped with two mould board ploughs (width of cut of share is 10 cm) spaced at 30 cm and curvature of mould board is specially designed and extended to prevent fall back of cut loose soil in the furrows.

Specifications

Power source	:	>26 kW Tractor
Number of rows	:	Single trench consisting of a paired row
Type of furrow opener	:	Deep and wide trench consisting of paired rows
Spacing between paired row, cm	:	30
Spacing between trenches, cm	:	120
Cost of the machine, Rs	:	1,00,000
Cost of planting operation, Rs/ha	:	3000
Performance results		
Effective field capacity, ha/h	:	0.20
Field efficiency, %	:	60
Saving in cost of operation over conventional, %	:	60
Saving in labor requirement, %	:	>90 (35 man-d)

Benefits over conventional/traditional practices

This machine facilitates mechanization of trench method of planting and performs all the unit operations involved in sugarcane planting including sett cutting simultaneously in single pass. Sub-surface drip laterals laying attachment has also been provided.

Status of commercialization

Commercialized and applicable to sugarcane growing area of the country especially sub-tropical part.

3. Tractor Operated Disc Type Ratoon Management Device

Introduction

Ratoon occupies more than 50 per cent of sugarcane area. Productivity of sugarcane ratoon crop could be improved by performing cultural operations like stubble shaving, cutting of side old roots (off barring) and application of fertilizer near to root zone during initiation of ratoon after harvesting. Studies have indicated that leaving trash in the field after sugarcane harvesting improves soil health and sustain ratoon yield. Disc type ratoon management device (Disc RMD) consisted of main frame, stubble shaving, off barring, fertilizer metering and power transmission unit. A concave disc with replaceable serrated cutting blades mounted on disc periphery was designed to spin through power take off (PTO) drive of the tractor for shaving stubbles close to ground level. Concave disc having hardened sharpened edges has been provided at either side of stubbles for cutting and pruning of side old roots (off barring). Cutting and pruning of side old roots were performed by rolling action of sharpened edges of disc without dragging and clogging of surface trash. Removal or burning of field trash was not a prerequisite in case of Disc RMD which was the case with the existing machinery.

Specifications

Power source	:	>26 kW Tractor
Cost of the machine, Rs	:	1,20,000/-
Number of rows	:	Single or two
Number of off barring discs for each row	:	2
Cost of operation, Rs/ha	:	1800/-
Performance results		
Width of coverage, m	:	1.5
Effective field capacity, ha/h	:	0.28
Field efficiency, %	:	76
Saving in cost of operation over conventional, %	:	50
Saving in labor requirement, %	:	90

Benefits over conventional/traditional practices

This machine performs stubble shaving, fertilizer application and off barring and pruning of side old roots simultaneously in single pass.

Status of commercialization

Commercialized and is applicable to sugarcane growing area of the country.

Pest Control Technology for Sugarcane

Management of Sugarcane Insect-Pests through Bio-Agents

Concealed habitat of sugarcane borer pests rendering not only insecticidal application rather difficult but also inaccessible besides low profit margin of the ratoon crops. In this direction, a semi-synthetic diet comprising mainly of leaf sheath powder, rajma beans and casein etc. was composed which could successfully enable artificial rearing and afford continuous availability of stem borer larvae in the laboratory. A larval parasitoid, viz., Cotesia flavipes could be mass multiplied on this diet which has been found to bring about 52.9% reduction in stalk borer infestation through its releases @ 500 mated females per week/ha from July to November.

The technology for multiplication of Trichogramma chilonis (on green card) was developed with improved quality attributes and popularized among sugarcane farmers community in U.P., Bihar and Maharashtra.

The war against stem and root borer starts with their egg stage when inundative release of an egg parasitoid, Trichogramma chilonis @ 50000/ha at 10 days interval from July to October could bring about 46-90% and 42-44% reduction in the infestation of internode and root borers, respectively.

A pupal parasitoid, viz., Tetrastichus howardi could be mass multiplied on borer pupae of sugarcane (top, stalk, internode, pink borer and maize stem borer) as well as pupae of silk worm and pierid butter fly. The inundative release of pupal parasitoid Tetrastichus howardi @ 500 adult/ha in each brood significantly reduced incidence of top borer (III and IV broods) in subtropical India.

For the management of pyrilla, redistribution of an effective parasitoid, viz., Epiricania melanoleuca from highly abundant areas to low abundant areas was found not only to check the commonly occurring epidemics but also could establish in Maharashtra around Rahuri area and thereby checked aerial spraying in that area and created a success story.

In pheromone technology, lures of top borer were effective in attracting/trapping the moths (I, II, III and IV brood) emergence. These traps helped in monitoring as well as reduction of top borer incidence.

Under push Pull technology, trap crops like coriander, marigold, tomato, brinjal, jowar and maize helped conservation of parasitoids of insect-pests of sugarcane.

Use of Trichocard and release of Cotesia gravid females against borers reduced the pest incidence significantly and gave a cost-benefit ratio of 1:1:97.

Thus, application of above bio-control technology has led to effective management of major insect-pests of sugarcane all around minimizing thereby use of insecticides, reducing cost of plant protection and pollution load in the environment.

Bio Control Technology for Sugarcane

IISR-Combo Insect Trap

IISR-Combo insect trap - a combination of light and pheromone has been developed by the ICAR-Indian Institute of Sugarcane Research, Lucknow for monitoring and mass trapping of white grub beetles and other insect pests. White grubs have been the important sporadic pest of sugarcane in Western Uttar Pradesh, foothills of the Himalayas, parts of Bihar, Maharashtra, Tamil Nadu and some other areas of the country. About 33 species of white grubs belonging to different genus have been reported to infest the sugarcane crop in India. In general 10-30% damage of the sugarcane crop is recorded in the infested areas, however, in the severely infested fields, complete crop failure can be observed. Most of the species take one year to complete their life cycle and it starts with the emergence of adult beetles after hibernation. The adult beetles generally start emerging from the soil after pre-monsoon rains in April-May and continue to emerge up to October. The beetles do not feed on sugarcane foliage. They feed on leaves of trees like *ber, neem, sheesam, batain, jamun,* mango, guava etc. and the adult beetles lay eggs in soil. On hatching, the larvae comes out and orient towards roots. Being polyphagous, they feed on the roots of a wide variety of crops and weeds. As a result of feeding on roots, the water & nutrient uptake capability of root system gradually diminishes. The affected plant shows varying degree of yellowing, wilting and death. For effective monitoring and management of the beetles, IISR-Combo Insect Trap was developed. The trap can also be used for monitoring of other major insect pests of sugarcane, such as top borer and other borers by using their specific pheromones. Besides pests of sugarcane, the trap can be used for monitoring and mass trapping of phototropic insect pests of various crops. The same trap can also be used with the solar attachments in the areas where regular electricity supply is not available.

Cost & economics involved: Approx. Rs 1500/= per trap (Normal); Rs. 15000/= per trap (Solar). Cost of pheromone is approx. Rs. 20/= per ha per season. The conventional method of chemical control involves Rs 6000/= per ha, while use of traps continuously from April to August helps in bringing down the population of white grubs and other pests significantly.

Dose & method of use: On an average one trap per ha installed either near field or near host trees of beetles. Avoid installation of traps inside the sugarcane field. Lit the trap every day in the evening and can be put off after 10 pm, as most of the beetles catch are recorded up to 10 pm. The trap should be charged with pheromone every 15 days interval or depending on need.

Technology demonstration & adoption: The technology was tested, demonstrated and adopted in large number of sugar mills of Uttar Pradesh and Maharashtra.

Technology commercialization: The technology has been transferred to M/S Fine Trap (India), Yavatmal (Maharashtra) and M/S Microplex India, Wardha (Maharashtra) for Rs 2.00 lakhs each for further manufacturing and commercialization. So far, about 10,000 traps have been sold out in different parts of the country.

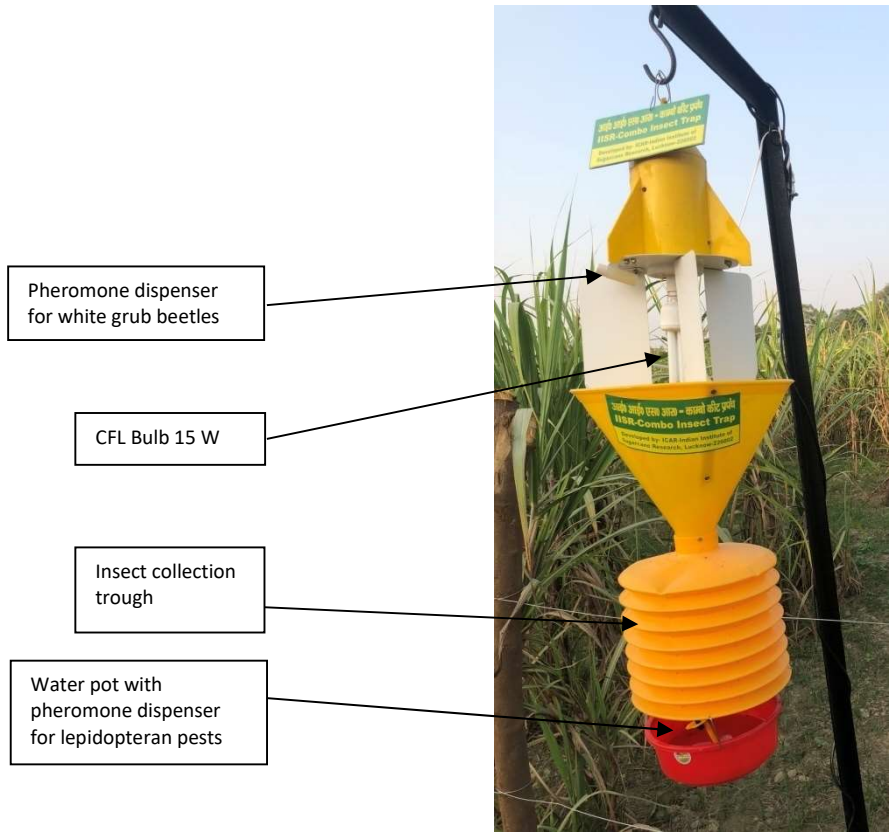


Fig: IISR-Combo Insect Trap

Seed Technology for Sugarcane

Spaced Transplanting Technique (STP)

- Nursery raising from single bud setts and transplanting
- Saving of seed cane (~70%)
- Uniform crop stand
- Maintains higher population of millable canes
- Higher seed multiplication ratio (1 : 40) and 30 % cost saving

Bud chips for faster multiplication of seed cane

- Early and higher rate of bud germination (70%)
- Plant survival (~ 50%)
- Higher seed multiplication rate (1:60 vs 1:10)
- Higher cane height (>2.0 m), weight (>1.0kg), NMC/clump (>4) and higher cane yield (~120t/ha)
- 80% seed material can be saved using bud chips
- Easy for transportation and seed treatment

Cane node Technology

- Stem cutting with a bud and root band
- Priming for 15-20 min with organic slurry (cattle dung: cattle urine: water 1:2:5)
- Incubate in nursery with decomposed FYM :soil 1:1 to 1:5 (moisture ~70%)
- Seal with thick soil layer
- Germination within 4-5 days
- Early sprouting of buds
- High initial shoot population and number of millable canes.
- Ease of transport of planting material.
- Saving in seed rate ~80%
- Cost saving ~75%

MANAGEMENT TEAM OF ICAR-IISR ABI

Project Leader	:	Dr. A. D. Pathak Director
Principal Investigator	:	Dr. Dilip Kumar Principal Scientist
Co- Principal Investigator	:	Dr. A K Singh Principal Scientist & Head (Officiating)
Co- Principal Investigator	:	Dr. Sanjeev Kumar Principal Scientist (Ag Biotech)
Co- Principal Investigator	:	Dr. S N Sushil Principal Scientist
Co- Principal Investigator	:	Dr. Arun Baitha Principal Scientist
Co- Principal Investigator	:	Dr. A K Sah Principal Scientist & Incharge
Chief Administrative Officer	:	Mr. Saroj Kumar Singh
Business Manager (Agri-Business Incubation Centre)	:	Mr. Chaitanaya Mishra
Young Professional – I (Agri-Business Incubation Centre)	:	Mr. Sunny Kumar Mishra

Contact us

Agri-Business Incubation Centre

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