



CTRI

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# Newsletter

**CENTRAL TOBACCO RESEARCH INSTITUTE, RAJAHMUNDRY-533 105**

## RESEARCH HIGHLIGHTS

### CTRI, Rajahmundry

□ The gene bank of CTRI has 1897 entries which include 934 exotic, 923 indigenous tobacco varieties and 40 species of genus *Nicotiana*. During 1999-2000, 50 new germplasm lines were obtained from USA and France. Seed of 284 varieties and 19 species accessions was distributed to 30 Institutions/Universities/Agencies.

□ Amongst recently evolved FCV selections assessed in bulk assessment trial, V-3884 recorded maximum cured leaf yield (2339 kg/ha), bright leaf yield (1059 kg/ha) and grade index (1758 kg/ha) with 16% increase in both cured leaf and bright leaf and 10% increase in grade index over better control Gauthami variety.

□ Interspecific hybrid derivatives of *N. amplexicaulis-tabacum* and *N. tabacum longiflora* have been evaluated and found resistant to root knot nematode *Meloidogyne javanica* at Rajahmundry and to the three species *M. javanica*, *M. incognita* and *M. arenaria* under Hunsur conditions in sick nursery and sick field.

□ Brown spot disease resistant variety L-1128 (SR) was used as a donor for effecting crosses with high yielding varieties.

□ Studies on the feasibility of LPG as an alternate fuel to cure FCV tobacco has indicated that it can effectively be used to cure FCV tobacco. The results during the period under report showed that about 4.21 kg of coal is required to cure 1 kg of cured leaf which costs around Rs. 7.70 per kg of cured leaf. In respect of LPG gas 0.43 kg of gas is required to cure 1 kg of leaf which

costs around Rs. 5.80 per kg of cured leaf. Thus, there is a net saving of Rs. 1.90 per kg of cured leaf cured with gas, compared to coal. Further, there is saving in curing time of 30 hours when compared to curing of leaf with coal in the conventional barn.

□ Dryage loss studies conducted in Karnataka and Andhra Pradesh showed that low grades lost more weight during auction and further storage in the godown followed by medium and bright grades. Dryage loss was dependent on R.H. and temperature in the godown.

□ Monitoring of pesticide residues showed that the residues of organo chlorine insecticides have come down to trace level in almost all the tracts and auction platforms and only one or two stray samples were found to exceed the tolerance level in respect of DDT or dieldrin. The residues of BHC which were high earlier have come down to negligible level.

□ Thiamethoxam (Actara) 25% WG, a new contact cum systemic insecticide @ 75 g a.i./ha effectively controlled the tobacco aphid, *M. nicotianae* up to 16 days after spraying while it gave cent per cent control up to 8 days after spraying.

### CTRI RS, Hunsur

□ Experiments revealed that 40 kg  $P_2O_5$ /ha is sufficient for FCV tobacco in KLS conditions. The new high yielding varieties, K-326 (NLS-4) and Ratna (FCH 6534) performed well with 60 kg N/ha with bud topping.

□ Two foliar sprays of Tilt 25% EC (propiconazole) at 50 and 60 DAS

preceded by BM. schedule is identified as the best chemical control for anthracnose in FCV tobacco nursery.

□ Trials with different organic manures for three years have indicated that FPC (Press mud) @ 6 t/ha can be an effective and economical substitute for FYM in the field crop of FCV tobacco. FPC can help in minimising root-knot index of tobacco crop in addition to better yield and quality.

### CTRI RS, Veda sandur

□ Four caterpillar resistant selections viz. HV-94-19, HV-94-21, HV-96-3, HV-97-7 and HV-96-4 developed through back cross breeding involving Meenakshi and VR-2 as recurrent parents and DWFC as a donor were found to be completely resistant to caterpillar.

□ In bulk trials, all the four promising country cheroot tobacco lines viz. HV 97-2, HV 97-3 and HV 97-10 gave higher yields ranging from 31.3 to 68.4 % over the check I-737 and two of them viz. HV 97-2 and HV 97-10 were superior to the check in smoking quality also with a score of 31 out of 40.

□ Five Cuban cigar binder wrapper varieties raised in Pachular area were tested for smoking quality. On overall basis, Corojo was found to be the best with a score grading of 34.5 out of 40.

□ Two promising chewing tobacco lines viz. HV 96-16 and HV 96-17

selected following intermating in F2 gave higher yields of 2971, and 3104 kg/ha, respectively as compared to the best check HV 86-5(2921kg/ha).

Chewing tobacco line HV 86-5 (Abhirami) and Bhagyalakshmi were found to be suitable for commercial cultivation in Amaravathipudur area of Ramnad district in Tamil Nadu. HV86-5 recorded the highest yield and the mean yield increase of 19.93% over the parent I-64 and 10.14% over the best check, Meenakshi.

#### CTRI RS, Kandukur

Studies on suitability of some non-conventional crops as alternatives to tobacco indicated lemon grass and palmarosa grass among aromatic plants and senna among medicinal plants as promising, with higher returns and more favourable C:B ratio compared to tobacco.

#### CTRI RS , Dinhata

Motihari tobacco selection 8-4-1 produced significantly higher cured leaf yield with 60 x 90 cm spacing, 120 kg N/ha and topping at 10 leaves over the control, selection DD-437. Selection 8-4-1 registered 18% and 12.7% more cured and first grade leaf, respectively over control, selection DD-437.



#### CTRI RS, Guntur

##### Economics of growing tobacco types and alternate crops in central vertisols

Crop	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	C:B Ratio
FCV tobacco	32280	32475	195	1.01
HDBRG Tobacco	35448	37800	2352	1.07
Natu (Rainfed)	35574	38500	2926	1.08
Maize	17530	25200	7670	1.44
Soybean	15075	18000	2925	1.19
Redgram	14728	21000	6272	1.43
Soybean+Redgram	15180	20000	4820	1.31
Maize+Redgram	18695	33100	14405	1.77

### AD-HOC PROJECT RESEARCH HIGHLIGHTS

An ad-hoc project entitled "Implications of tritrophic interactions in IPM of some important crop pests was started at CTRI in 1999, under principal investigatorship of Sri S. Gunneswara Rao, Scientist (Sr.Scale) and research is in progress. Some of the findings are as follows:

Lanka tobacco is the most favoured tobacco type for *Spodoptera litura* F and its natural enemies *Telenomus remus* Nixon (egg parasitoid) and *Cotesia africanus* Cameron (larval parasitoid) and contained lower nicotine, rutin and leaf surface waxes at vegetative growth stage.

Longer Trichomes of burley tobacco were detrimental to *T. remus* activity while *Cotesia* activity was not affected.

Survival of neonate larvae of *S. litura* was highest on lanka and lowest on DWFC tobacco.

Rustica and DWFC tobacco contained higher amounts of

*Cotesia* could form cocoons and complete its life cycle on Lanka and Burley tobacco. *Cotesia* failed to form Cocoons on other tobaccos, viz., K-326, DWFC, Rustica and Turkish, .

NPV induced mortality was higher on Rustica and Turkish tobacco even at early stages of infection than in other tobacco types.

Aruna, 48-1 and wild accession were most favoured castor varieties for *S. litura* and its identified entomophages and contained lesser amount of leaf surface waxes and higher amounts of Carotenoids and Chlorophyll than DCH-4, Sowbhagya and GCS-9.

Weeds in tobacco crop environment viz., *Boerhavia diffusa* and *Amaranthus viridis* were able to support *S. litura* and *Cotesia* activity. *Commerlina benghalensis* was less favoured.



*Cotesia africanus* cocoons and parasitised *S. litura* larvae developed on *Boerhavia diffusa* L.

nicotine, rutin and leaf surface waxes and were found to be the most unfavourable hosts for *Cotesia* activity.

**Seed production by CTRI**

Seed production section of CTRI produced seed of FCV and Lanka in different villages and CTRI, Farm for sale and Research work for the season 2000-2001.

Varieties Village	1158		Hema		Gauthami		NLS-4		Lanka		Total	Total
	Ac	Seed in kg	Ac	Seed in kg	Ac	Seed in kg	Ac	Seed in kg	Ac	Seed in kg	Ac	Seed in kg
1. Vadiseleru	69.80	3,220	292.20	15,420	21.0	768	-	-	-	-	383.00	19,408
2. Tadipudi	15.00	760	67.50	2,850	-	-	-	-	-	-	82.50	3,610
3. Katavaram	50.10	2,220	7.70	490	-	-	-	-	-	-	57.80	2,710
4. R.D.Puram	36.70	1,875	-	-	-	-	-	-	-	-	36.70	1,875
5. CTRI Farm, Katheru	-	-	-	-	-	-	18.0	299	12.0	880	30.00	1,179
<b>Total</b>	<b>171.60</b>	<b>8,075</b>	<b>367.40</b>	<b>18,760</b>	<b>21.0</b>	<b>768</b>	<b>18.0</b>	<b>299</b>	<b>12.0</b>	<b>880</b>	<b>590.00</b>	<b>28,782</b>

**GROWERS MEET****CTRI, Rajahmundry**

□ Sri M. Sannibabu, Dr. A.V.S.R. Swamy and Dr. S.V. Krishna Reddy, Scientists of CTRI have participated in grower-meet on "FCV tobacco crop holiday and alternate crops" held at Koyalagudem on 19-6-2000 and also at Jangareddygudem, W.G.Dt. on 20-6-2000 organised by Tobacco Board.

□ Sri M. Sannibabu, Sr. Scientist & Head, Division of Crop Production, CTRI, Rajahmundry participated in growers meet on "FCV tobacco crop holiday and alternate crops" held at Devarapalli, W.G.Dt. on 24-6-2000, organised by Tobacco Board.

**WORKSHOPS/SUMMER SCHOOL**

□ Dr. C.A. Raju, Sr. Scientist (Plant Pathology) attended DBT sponsored workshop on "Molecular approaches for pest and disease resistance in crops/plants" held at Centre for Plant Molecular Biology, Tamilnadu Agricultural University, Coimbatore from 15-30 March, 2000.

□ Dr. S.V. Krishna Reddy, Scientist, CTRI RS, Jeelugumilli attended Summer School on "Energy Management in Agriculture" organised by CIAE, Bhopal from May 15 - June 13, 2000.

**RADIO TALKS**

□ వేసవిలో పశుసంరక్షణకు తీసుకోవలసిన జాగ్రత్తలు by Dr. P.V.V.S. Siva Rao on AIR, Visakhapatnam on 4-4-2000.

□ వర్షానికి పాగాకులో ఆకురెలుపు, క్యూరింగు, గ్రేడింగు పద్ధతులు by Sri M. Sannibabu on AIR, Visakhapatnam on 25-4-2000.

□ వేసవి కూరగాయల సాగులో పాటించవలసిన జాగ్రత్తలు by Dr. B. Narshimha Rao on AIR, Visakhapatnam on 12-5-2000.

**PAPERS PUBLISHED**

CHARI, M.S., K. NAGARAJAN and G. RAMAPRASAD. Pest and disease management in tobacco. In IPM system in Agriculture, Ed. by

Upadhyay, R.K. et al. Aditya Books & Ltd., New Delhi, 1999, pp. 227-251.

**LECTURES GIVEN**

□ Dr. G.M. Reddy, Retired Professor of Biotechnology, Osmania University, Hyderabad and DBT expert on Institutional Biosafety Committee (IBSC) of CTRI gave a lecture on "Genetically modified plants for food use" to the seminar group of CTRI at Rajahmundry.

□ Dr. Seema Wahab, Director, Dept. of Biotechnology, Govt. of India and DBT expert on IBSC of CTRI addressed the seminar group of CTRI and explained the activities of DBT and its role in Formulation of Biosafety guidelines to the nation.



Dr. K. Nagarajan addressing the delegates of Rapid Assessment Survey of Medicinal Plants held at CTRI, organised by Forest Dept., Government of A.P.

## OTHER ITEMS

## CTRI Participation in ICAR Inter-Zonal finals Sports Meet

The CTRI contingent of four players was represented in ICAR Inter-Zonal finals sports meet 2000 held at Trivandrum, Kerala from 8th to 12th May, 2000 and won the following events.

Event	Place	Name of the player
<b>Men</b>		
1. Pole vault	Third	Sri S. Ramakrishna
<b>Women</b>		
1. Table Tennis (Singles)	First	Smt. V. Bhagyalakshmi
2. Table Tennis (Doubles)	First	Smt. V. Bhagyalakshmi Smt. P.V.S. Bharathi
3. Shuttle Badminton (Doubles)	First	Smt. P.V.S. Bharathi Smt. B. Swarna Kumari
4. Disc throw	Second	Smt. P.V.S. Bharathi
5. High Jump	First	Smt. V. Bhagyalakshmi

On this occasion Tobacco Institute Club, CTRI, Rajahmundry felicitated the players.



Dr. K. Nagarajan with sports winners and club members

## SCIENTIST APPOINTED



Dr. V. Venkata Subrahmanyam joined CTRI, Rajahmundry on 3-4-2000 on selection to the post of Sr. Scientist (Agric. Extn.) in the Division of Crop Production. Having an outstanding career, he received 5 National Fellowships and was awarded Gold medals during Masters and Doctoral Programmes. He worked in several associations/societies in different capacities. He was awarded the prestigious "Young Scientist's Award" for the year 1997-98 by the National Academy of Agriculture Sciences. He has contributed 60 research papers, review articles and scientific publications. He has authored seven books. Previously he worked as Assistant Professor in T.N. Veterinary and Animal Sciences Univ., Chennai and Scientist (Ag. Ext.) at IVRI, Izatnagar and CARI, Portblair.

## INSTITUTIONAL BIOSAFETY COMMITTEE (IBSC) MEETING

Fifth meeting of Institutional Biosafety Committee (IBSC) was held on 28-4-2000 under the Chairmanship of Dr. K. Nagarajan, Director, CTRI. The Committee reviewed the biosafety measures followed at the Institute in evaluating transgenic (Bt) tobacco cultivars in screen house and open field trial. The committee expressed full satisfaction with the biosafety measures followed at the Institute and recommended for continuation of open field trial for one more season to generate information on the effect of growing transgenics on the soil microflora.



Dr. K. Nagarajan addressing the committee members

## IMPORTANT EVENTS AT CTRI RESEARCH STATION, VEDASANDUR

Dr. K. Nagarajan, Director, CTRI performed Bhumi Puja and laid the foundation stone for the construction of type-III quarters at this Res. Stn. The estimated cost is Rs. 15 lakhs.

□ Dr. K. Nagarajan unveiled the

Golden Jubilee Commemoration Stubi at this Research Station which was constructed on the eve of CTRI RS, Veda sandur Golden Jubilee Celebrations.

□ Smt. Sridevi Nagarajan, Head, Dept. of Chemistry, CGTM College,

Rajahmundry inaugurated the Pantry room of the Scientist Home at the Station.

□ Sri R. Rajagopal, Executive Engineer, CPWD, Madurai inaugurated the full-fledged seminar hall equipped with latest audio-visual aids.



Dr. K. Nagarajan performing the Bhumi Puja for Quarters



Dr. K. Nagarajan with Station staff

## NEW EQUIPMENTS ADDED

□ A new sophisticated equipment GC-TEA (Gas Chromatograph-Thermal Energy Analyser), to estimate tobacco specific nitrosamines which are identified as harmful substances present in tobacco, worth Rs. 16 lakhs was installed in the Division of Crop Chemistry & Soil Science. Dr. K. Nagarajan, Director, CTRI inaugurated the system on 7-4-2000.

□ A light weight and compact panasonic LCD Projector (model No. PT-L595EA) was imported from Singapore at a cost of Rs. 2 lakhs for screening scientific presentations in a better way directly from computer. This provides high density and high picture quality with high resolution. Screens from 30 inches to 300 inches can be used. It is equipped with a variety of convenient functions. This system was inaugurated by Dr. K. Nagarajan on 17-5-2000.



Dr. K. Nagarajan inaugurating LCD projector

## VISITORS

### CTRI RS, Dinahata

Dr. A.P. Mishra, Project Director, Bidhan Chandra Krishi Viswavidyalaya visited the station with a group of scientists.

### CTRI RS, Veda sandur

12-6-2000 Sri P. Chidambaram, Former Finance Minister, Govt. of India

12-4-2000 Sri P. Kumaraswamy, Hon'ble Member of Parliament representing Palani constituency.

**I visited this Research Centre. I thank Dr. K. Palanichamy and his staff for welcoming me enthusiastically. Dr. K. Palanichamy and his staff showed keen interest in developing the tobacco field. My best wishes and wish all success.**

**P. Kumaraswamy**

### INTER-AGENCY TEAM VISIT

Dr. M.M. Shenoi, Sr. Scientist and Head, CTRI RS, Hunsur along with other members of Inter Agency team visited the KLS area for studying the crop situation. The team observed that a total of 36,054 ha was planted (till 20th June, 2000) as against the total area of 52,548/ha planted during 1999 crop season which amounts to 31.4% reduction in the area.



### RETIREMENTS

Name	Designation	Reason	Date
Sri D. Balaiah	SS Gr.IV	Medical grounds	08-03-2000
Sri B. Narasimha Rao	SS Gr.IV	medical grounds	01-04-2000
Sri I.K. Sharma	SAO	Voluntary	02-05-2000
Sri T. Vidyasagar	Jr. Steno	Voluntary	27-05-2000
Sri Babu Saheb Jha	T-II-3	Superannuation	31-05-2000
Sri K. Venkanna	T-II-3	Superannuation	30-06-2000
Sri M. Simon Rao	T-1-3	Superannuation	30-06-2000

### INTER-INSTITUTIONAL TRANSFER

Sri P. Eswara Rao, Tech. T-1 (Driver) transferred from Central Institute of Fisheries Education, Kakinada and joined at CTRI RS, Guntur on 6-4-2000.

### OBITUARY

Sri P. Sambaiiah, SS Gr.IV of CTRI RS, Guntur expired on 24-6-2000.

### TAR-IVLP

The following technological interventions were initiated at Mukkamala, Peravali mandal, West Godavari district.

□ Assessment of viral diseases (Banana bract mosaic, Infectious chlorosis/Heart rot, Banana streak and Bunchy top) control measures on the yield of banana in the Godavari delta of West Godavari district.

□ Assessment of limited ratooning (two ratoons) as against continuous ratooning on yield of banana in the Godavari delta of West Godavari district.

□ Assessment of recommended plant density in sole banana (cv: Karpura Chakkara Keli) orchards on banana yield in the Godavari delta of West Godavari district.

Results of some of the technological interventions at

Kotikesavaram, Nagampalli and Chipurupalli villages in uplands of East Godavari district during 1999-2000 are as follows:

■ Blackgram varieties LBG 648 and LBG 17 yielded higher than LBG 402 and local.

■ Greengram varieties LGG 410 and LGG 450 yielded higher than LGG 407 and local.

■ Yield level and grain quality of paddy variety M7 are on par with those of BPT 5204 but variety M 7 came to harvest earlier by 7 to 10 days.

■ Balanced fertiliser application improved the yields of paddy, mango and cashew.

■ Vanaraja breed of poultry is successful as backyard poultry. Weight gain of Vanaraja birds is more than that of local birds.



Vanaraja birds in backyards of IVLP village

## KRISHI VIGYAN KENDRA

During the period under report i.e. from 1.4.2000 to 30.6.2000 a total of 14 training programmes were conducted for 257 farmers, farm women and rural youth.

### Extension functionaries training programmes

Seven training programmes were conducted to 65 veterinary assistant surgeons from various districts of Andhra Pradesh on Fodder production technologies and field problems.

### Exhibitions

KVK participated in Rural Technology Fair at Baripada (Orissa state) from 1.4.2000 to 15.4.2000. Extraction of palm fibre & coconut fibre with palm fibre separator and coconut machinery were demonstrated in the exhibition.

### Long duration training programmes

Two months long duration training programme on "Coir 2-ply yarn and Door mat making" was conducted at KVK from 20-4-2000 to 20-6-2000 from Tallapalem village. Eighteen rural youth (F) participated in the training programme.

### Visitors

Twelve extension functionaries for Rural Development from four districts viz. Srikakulam, Vijayanagaram, Visakhapatnam and East Godavari visited KVK, Kalavacharla on 28-6-2000 to acquaint with the KVK activities.

### Front line demonstrations

Under Front line demonstration, an area of six hectares each for groundnut and sesamum was allotted. During rabi summer, groundnut demonstration was taken up at Punyakshetram village with three varieties viz. DRG-12, ICGS-44 and TMV-2. An yield increase of 34 to 45% was recorded over the local check.

Similarly six ha of sesamum demonstration was conducted at Rayavaram village with the variety YLM-11 and recorded an increase of 35% over the local check.

Groundnut polythene film mulch experiment was conducted in two locations at Kalavacharla village.



Dr. K. Nagarajan observing the Polythene mulching in groundnut

### WORK SHOP / CONFERENCE

S.No.	Participant	Programme attended	Date & Place
1.	Dr. B. Narsimha Rao Tech. Off. T-7	Half yearly workshop on KVK	25-27th May, 2000 at KVK, Gaddipalli
2.	Dr. B. Narsimha Rao Tech. Off. T-7	Integrated Disease Management on Horticultural crop	19-24th June, 2000 at IIHR, Bangalore

### TRANSFER OF TECHNOLOGY

Date	Staff attended	Programme	Place and Organiser
07-4-2000	Dr. B. Narsimha Rao Tech. Off. T-7	Papaya production technology	Gollapalem
17-6-2000	Sri S. Jitendranath Tech. Off. T-5	Demonstration of Direct Paddy Seeder	Mukkamala
23-6-2000	- do -	- do -	Irusumanda
27-6-2000	- do -	- do -	Kotturu & Nallacheruvu
28-6-2000	Smt. N. Aruna Kumari Tech. Off. T-5	Demonstration of Vermicompost making	KVK, Kalavacharla

### Inauguration of Rural Crafts Workshed

Rural crafts workshed constructed at KVK, Kalavacharla at a cost of Rs. 5.15 lakhs was inaugurated by Dr. K. Nagarajan, Director CTRI on 19th April, 2000.



Dr. K. Nagarajan unveiling the plaque

## संक्षिप्त समाचार

### अनुसंधान उपलब्धियाँ

#### सी.टी.आर.आई., राजमंद्री

□ सी.टी.आर.आई. जीन बैंक में 1897 प्रविष्टियाँ हैं जिनमें तम्बाकू के 934 विदेशी, 923 देशी और जीनस निकोटियाना के 40 जातियाँ शामिल हैं। 1999-2000 के दौरान यू.एस.ए. और फ्रान्स से 50 नये जेरमप्लाजम लाईनें प्राप्त किये गये। 30 संस्थानों/विश्वविद्यालयों/एजेन्सियों को 284 किस्मों के बीज और 19 बढ़ती जातियों की आपूर्ति की गयी।

□ उच्च पैदावर वाले किस्मों के साथ सक्को को प्रभावित करने में भूरा धब्बा रोग के प्रतिरोधी किस्म एल-1128 (एस आर) को सहायक के रूप में प्रयोग किया गया।

□ एफ.सी.वी. तम्बाकू को संसाधित करने के लिए एल.पी.जी. को एक वैकल्पिक ईंधन की संभावना पर अध्ययनों से यह सूचित किया गया कि एफ.सी.वी. तम्बाकू की संसाधन में यह प्रभावशाली ढंग से प्रयोग किया जा सकता है। रिपोर्ट अवधि के दौरान परिणामों से यह पाया गया कि एक कि.ग्र. संसाधित पत्तों जिसका मूल्य करीब ₹.7.70 है, को संसाधित करने के लिए लगभग 4.21 कि.ग्र. पत्थर कोयला चाहिए। करीब ₹.5.80

कीमत वाले एक कि.ग्र. पत्तों के संसाधन के लिए 0.43 कि.ग्र. एल.पी.जी. गैस चाहिए। इस प्रकार कोयले की तुलना में गैस के सहारे संसाधित करने से हर कि.ग्र. के लिए ₹.1.90 निकर बचत हुआ है और लौकिक बार्न में पत्तों की संसाधन की तुलना में संसाधन के समय में 30 घंटों का समय बचता है।

□ आंध्र प्रदेश और कर्नाटका में सूखापन की हानि पर किये गये अध्ययनों द्वारा यह पाया गया कि नीलाम में और गोदाम में भंडारीकरण से मध्यवर्ती, चकीला और निम्न ग्रेडों में वजन की अधिक हानि हुई।

□ पेस्टिसाइड अवशिष्टों के पर्यवेक्षण द्वारा यह दिखाया गया कि नीलामी प्लाट फार्मों और प्रायः सभी भूभागों में आर्गनों क्लोरीन कीटनाशक अवशिष्ट सूक्ष्म मात्रक स्तर तक आ गये और डी.डी.टी. या डील्डरिन के सहिष्णुता की स्तर से एक या दो बिखरे नमूने अतीत हो गये। बी.एच.एल. के अवशिष्ट जो पहले अधिक थे वे उपेक्षा करने योग्य स्तर तक आ गये।

#### सी.टी.आर.आई. अनुसंधान केन्द्र, हुन्सूर

□ केन्द्र में किये गये प्रयोगों द्वारा यह पाया गया कि कर्नाटका के हल्की मिट्टियों में धुआँ संसाधित वर्जीनिया

तम्बाकू के लिए 40 कि.ग्र. पी2ओ5 प्रति हेक्टेयर पर्याप्त है।

□ एफ.सी.वी. तम्बाकू नर्सरी में एनथ्राक्नोज के लिए उत्तम रासायनिक नियंत्रण में बुआई के 50 और 60 दिनों के बाद बोर्डों मिश्रण के प्रयोग उपरांत टिल्ट 25 प्रतिशत (प्रोपिकोनाजोल) के दो पर्णय छिड़कावों की अनुसूची पहचान की गयी।

□ तीन वर्षों में विभिन्न जैव खादों के साथ किये गये परीक्षणों द्वारा यह पाया गया कि एफ.सी.वी. तम्बाकू के फसल क्षेत्र में अहाता खाद के बदले प्रतिहेक्टेयर 6 टन की दर में एफपीसी (प्रेस मड) आर्थिकतया एवम प्रभावी हो सकता है। तम्बाकू फसल के बेहतर उपज और गुणता के अतिरिक्त रूट-नाट इंडेक्स को कम करने में एफपीसी सहायक हो सकता है।

#### सी.टी.आर.आई. अनुसंधान केन्द्र, वेदसंदूर

□ तमिलनाडु के रामनाद जिले के अमरावतीपुरुदुर क्षेत्र में खैनी तम्बाकू लाइन एच.वी.86-5 (अभिरामी) और भाग्यलक्ष्मी वाणिज्य खेती के लिए उपयुक्त पाये गये। एच.वी.86-5 ने उच्चतम उपज दर्ज किया जो पेरेंट आई-64 से मध्यतम उपज में 19.9 प्रतिशत और सर्वोत्तम किस्म मीनाक्षी से 10.14 प्रतिशत वृद्धि दिखाया।

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