



# **COMMUNITY RODENT CONTROL CAMPAIGNS - Andhra Pradesh Model**



**All India Network Project on Vertebrate Pest Management**

**Regional Agricultural Research Station**

Maruteru- 534122, West Godavari Dist., Andhra Pradesh

# **All India Network Project on Vertebrate Pest Management Regional Agricultural Research Station**

Maruteru- 534122, West Godavari Dist., Andhra Pradesh

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सदस्य (पौध विज्ञान)

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### FOREWORD

Indian Agriculture has taken several leaps in enhancement of productivity with untiring efforts of researchers by developing high yielding varieties and crop friendly approaches. However, pests remained as major production constraints posing challenges to the enhanced productivity. Among various pests inflicting crop damage, rodents are one of the major production constraints in cereal crops. Rice and wheat are the staple foods in the country and efforts for their increased productivity are being taken by Indian Council of Agriculture Research and State Agricultural Universities. Recognizing the rodent pests as major production constraints, the Andhra Pradesh Rice Research Institute under Acharya N.G. Ranga Agricultural University, Maruteru, Andhra Pradesh, an oldest research station, initiated work on rodents and their management under the aegis of ICAR initially from 1959 to 1969. From 1985 onwards the Institute formed one of the units under All India Coordinated Research Project on Rodent Control to undertake newer initiatives in rodent management.

In India rodents are known to inflict 5-15% pre harvest damage annually in rice growing deltaic regions. In addition, reports on rodent outbreaks also exist in the region taking the losses up to 50% or even more during the rodent outbreak periods. Krishna Godavari delta areas in Andhra Pradesh and Kaveri delta in Tamil Nadu in South India are endemic for the rodent pests and farming community take individual approach for rodent control with various means. This resulted in limited success. Rodents, being mobile pests, the success of control activities rely on the principle of community approach. The Central Plant Protection Training Institute (presently established as National Institute of Plant Health Management- NIPHM) technically guided the project center from 1985 and consequently this center developed several technologies on rodent control including rodent control campaign implementation.

The Department of Agriculture, Andhra Pradesh guided through these research results initiated systematic rodent control campaigns from 1992 onwards. The NIPHM in collaboration with APRI, Maruteru organized a National Workshop and developed the campaign assessment protocols, which are guiding the present Telugu States in affective rodent management. I understand that these campaigns yielded effective results leading to increased rice productivity in the Godavari-Krishna delta Mandals. I feel happy that an attempt is being made to put the achievements of campaigns organized by Department of Agriculture and efforts of the present AINP on Vertebrate Pest Management for guiding the State. I congratulate the authors for bringing out this compendium for organizing community based campaigns in the form of technical bulletin, which can be utilized elsewhere for implementing the community based rodent control campaigns effectively.

**P. K. Chakrabarty**

# PREFACE

Rodents are known to be associated with men and his livestock since times immemorial and often they share food and space with them. Although rodents inflict damage to several field and horticultural crops, they prefer to attack cereal crops like rice and wheat. Rice is a staple food in the country and more prone to attack by rodents irrespective of the type of rice production system. The extent of rodent damage reported in India ranges from 0.44 to 60 per cent of tiller damage which accounts for 5-15 per cent total grain yield losses.

Coastal areas of Andhra Pradesh, particularly Godavari and Krishna delta, became endemic to rodent pests in rice based ecosystems, due to Rice-Rice-Pulses cropping pattern, which provided continued availability of food and shelter for rodent pests. Further, deltaic alluvial soils are bulky and soft and highly conducive for making burrows by the fossorial rodents. In addition, increased irrigation facilities led to increased crop productivity and more food availability facilitating pest rodents to get highly conducive habitat for breeding and thereby increasing their population. Among the pest rodent species, the lesser bandicoot rat, *Bandicota bengalensis* is the most serious pest species contributing to 90% of the rodent losses in rice crop in this region. Due to their high reproductive and compensatory growth coupled with inefficient control methods, the State is experiencing periodic rodent outbreaks in these Krishna Godavari deltaic mandals resulting in significant production loss of rice, pulses and sugarcane. The reasons for such outbreaks is attributed to flash floods of 1977, 1988, 1996 and 2009 in these areas in preceding season, which removed part of the lesser bandicoot populations through burrow inundation in these limited areas. This spiked the populations of these left over bandicoots and rice crop suffered extensive damage. Even during these outbreaks, it is observed that for every 4 years, the delta mandals experienced minor outbreak and for every 10 years suffered major outbreaks, mostly based on extent of the flooded areas.

The campaign based measures involving whole community brought success in rodent control compared to individual farmers' approaches practiced earlier, which resulted in migration of rodents from untreated fields to treated ones. Further, the rodent population buildup during outbreak years and normal years could be prevented with pre-planned whole community involved rodent control campaigns.

The present publication is an attempt to compile the information and success of community based rodent control campaigns being undertaken since 1992 by the Govt of Andhra Pradesh with the technical support of APRRI, Maruteru centre of AINP-VPM and NIPHM, Hyderabad. It is hoped that this publication will be of immense use to the extension functionaries planning to organize community based rodent control campaigns for containing the rodent damage in crop fields. I am particularly thankful to Dr. A.M.K.Mohan Rao, a renowned International Rodent Expert for closely guiding the Project centre since its inception and in achieving significant results in the campaign based approach.

**Namala Srinivasa Rao**



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# Community Rodent Control Campaigns in Rice: Andhra Pradesh Model

Namala Srinivasa Rao and AMK Mohan Rao

## 1. Introduction:

Rodents are one of the major production constraints in crop fields and they cause more damage to cereal crops like rice and wheat. Among the field crops, rice is more prone to rodent attack and the current conservative estimate is that rodents in rice growing regions typically cause pre harvest annual losses between 5 and 15%. Literature perused indicated even wide ranging losses in India due to these pests. Added to this, the cropping patterns with increased irrigation potential often led to better survival and productivity of rodents making them endemic in those areas. They are even known for their outbreaks in several areas of the country, especially in North East, Western part of the country and Southern India. Between 1920 and 1997 all North eastern States barring Sikkim witnessed 8 severe outbreaks coincided with the bamboo flowering. The reason for the 3 outbreaks in Gujarat, and Rajasthan of Western India and parts of Karnataka of south India, could be attributed to prolonged rainfall after a long dry spell of several years which culminate better survival and breeding of young rodent population of the year. However, the outbreaks in Cauvery delta areas comprising parts of Tamil Nadu and Puducherry are due to lack of crop inundation by Cauvery river in the tail-end districts of the river in these two States.

## 2. Rodent pest problem in rice in Andhra Pradesh

Andhra Pradesh State in Southern India has a proven history of periodic rodent outbreaks resulting in significant production loss of rice, pulses, sugarcane and coconut. The financial implications of yearly minimum losses come to around Rs. 15,000 million in the case of rice production, Rs. 300 million in case of coconut and storage losses of another Rs. 375 million in the case of storage of rice alone. The losses will be more than the above in the years of outbreaks.

Some coastal areas of Andhra Pradesh, particularly Godavari and Krishna delta, became endemic to rodent pests in rice based ecosystems, due to Rice-Rice-Pulses cropping pattern, which provided continued availability of food and

shelter for rodent pests. Further, deltaic alluvial soils which are bulky and soft found highly conducive for making burrows easily by these fossorial rodents. In addition, increased irrigation facilities contributed to enhanced crop productivity thereby more food availability to the rodents resulting in increased breeding and populations. An estimate made by erstwhile All India Coordinated Research Project in Rodent Control, which is now named as All India Network Project on Vertebrate Pest Management (AINP on VPM) at AP Rice Research Institute, Acharya N.G. Ranga Agricultural University, Maruteru showed the rodent damage to rice as 15.9% in West Godavari, 10.45% in East Godavari, 10.42% in Krishna and 8.34% in Guntur districts. The studies conducted by AINP on VPM indicated that the overall tiller damage to rice crop ranged from 9.56 to 60.8% during kharif and 0.42 to 30.9% in rabi crop. As per these reports and assuming a moderate loss of 10% in Rice due to rodent pests the production loss would be around 1.5 m. tones out of 15 m. tones of total production of the state every year.

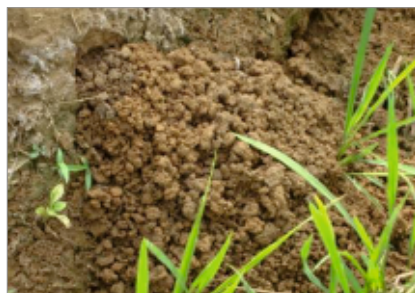
In these coastal districts, coconut is also cultivated around rice field bunds. The ICAR Project estimated the nut damage ranging from 10 to 15% of affected coconut palms. The infested palms are reported to be ranging from 40 to 60 per cent. Based on this data, the nut loss in coconut due to the rodent damage is around Rs. 300 millions in the state. In Sugarcane, cane damage ranging from 6.7 to 9.2% is reported in various studies. In addition to these pre-harvest losses, farm level storage losses amount to 2.5% with an approximate financial loss of Rs. 375 million due to rodents. However this loss depends on the period of farm level storage by the farmers. In addition, partial inundation of the crop due to overnight floods removes part of the rodent population leading to compensatory increased breeding by surviving ones. This culminates in to population explosion and ultimately rodent out break.

The lesser bandicoot, *Bandicota bengalensis* is the predominant pest species in rice cultivation in the State. It is an aggressive dominant rodent species with high fecundity, particularly especially during years of natural calamities; inundation of crop fields due to flash floods and heavy rains. About 10-15% pre harvest damage to rice is quite common in Godavari delta of Andhra Pradesh and damage crosses even 38-45%, if shoot removal is after PI / 40 DAT. Rodent damage is often aggravated in kharif crop, especially areas having summer pulse. Rodents tend to attack the rice crop from sowing to harvest and cause damage to germinating seeds in the seed bed, growing seedlings in the nursery, tiller damage in the transplanted crop, panicle hoarding in the burrows

in ripened crop. Generally rodents make a slant cut to the rice tiller at  $45^{\circ}$  as their chisel incisors move at an oblique angle. Of late, selective feeding by making damage to internal soft growing tissue rather complete slat cutting of the tiller has been noticed in rice variety Bheema (MTU-1140) with hard culm. By a Look into the history, the region has witnessed minor and major rodent out breaks generally at 4 and 10 year cycles, respectively. Godavari delta of Andhra Pradesh has witnessed a major rodent outbreak during the year 2009-10. During the year 2009-10, Department of Agriculture in Andhra Pradesh has declared crop holiday in certain mandals of Godavari districts due to shortage of irrigation water and low market prices. During that year, the deltaic region has witnessed the rodent outbreak due to the population explosion of *B. bengalensis* following the cyclonic rains and the population immigration into the crop fields from the surrounding vacant fields caused due to crop holiday.



Lesser bandicoot rat, *B. bengalensis*

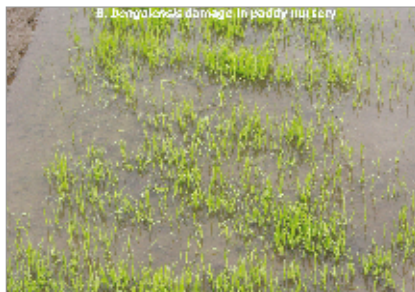


Live burrow of *B. bengalensis*

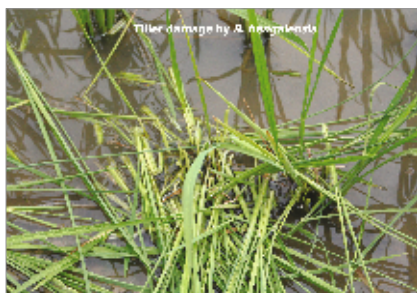
Lesser bandicoot, *B. bengalensis* (upto 90%) followed by *M. booduga* (below 10%) were the predominant pest rodent species associated with rice crop in this region. In rice, *B. bengalensis* remains fecund throughout the year with higher reproductive activity synchronising the reproductive phase of the crop i.e., March during rabi and Oct-Nov during kharif. Research data revealed that the existence of super foetation was intermittent and possessed almost double the number of embryos as that of normal pregnant females. The mean population growth estimates over the years indicated that, in general *B. bengalensis* could breed 2.7 and 2.45 times/season with seasonal productivity of 31 and 27 young ones/female during kharif and rabi, respectively. Among the various weather parameters rainfall was found to be pivotal on the incidence of *B. bengalensis* in rice ecosystem.



Damage in nursery bed



Damage to growing nursery



Damaged rice tillers



Grain hoarding in burrows



Selective feeding in tillers

**Fig. 2 Lesser bandicoot damage in rice**



In irrigated areas, the rodent infestation ranges from 55-60 live burrows per hectare. Further, the farmers are habituated to heap the rice crop harvests in the field itself so that it can be threshed and marketed only when they get higher price. This results in continued availability of food for longer periods to the rodents. In areas with summer pulse crop, the crop provides harborage for these pests in addition to continuous food availability, thereby making these areas endemic for rodent pests. The average land holding by farmers is 0.8 ha with 3.13 lakh small farmers and 0.77 lakh marginal farmers. These small and marginal farmers normally do not adopt any rodent control measures, until the initiation of rodent population. The normal practices followed by farmers include bounty payment, trapping with indigenous bamboo traps, poison bait application, which often includes phorate application. These measures are taken by farmers at individual level thereby covering small patches of the crops grown. Reports on mortality of non-target animals like birds also exist in these districts due to acute poisons and their improper use. Further, retention of the harvested crop produce for longer periods in the farmers' fields in stacks leads to more rodent damage. In some areas phorate is used for rodent control contrary to any scientific recommendation from extension agencies.

There is a history of rodent outbreaks in rice bowl areas of Godavari and Krishna delta due to flash floods. The rodent population alarmingly increased after the flash floods of 1977, 1988, 1996 and 2009 which resulted in extensive damage to rice crop in the affected mandals of these districts. In addition, the farmers of Godavari delta districts with East and West Godavari often experienced minor rodent outbreaks one season preceding those flash floods. The periodicity of the major rodent outbreaks was found to be about 10 years, while those of minor outbreaks to be at 3-5 years. The rodent population buildup during outbreak years and normal years could be prevented with pre planned rodent control campaigns.



Farmer removing rat damage tillers



Heaps of rat damaged tillers

**Fig.3 Rodent damage during outbreak years**



Rat damaged patches in rice



Rat catches during outbreaks

In view of the above situation, the Department of Agriculture organizes community based rodent control using chemical baits involving the entire farming community.

### **3. Rodent Control Campaigns in the State**

#### **3.1. History of rodent control campaigns in the state**

Campaign approach of rodent control was initiated in the state during the rodent outbreak of Godavari Krishna delta districts in 1996-97 using aluminium phosphide pellets. Earlier to this the State advocated use of zinc phosphide burrow baiting at 2.5% in the baits followed by aluminium phosphide fumigation of residual / leftover burrows. However, after 1997, looking at the safety of farming community with aluminium phosphide pellet application and also based on the national recommendations of Expert Committee on Rodent Control of Government of India, use of fumigant is replaced by burrow baiting of second generation anticoagulant rodenticide - Bromadiolone. In view of reported rodent damage at higher level in the Godavari-Krishna delta districts, rodent control campaigns were initiated using this anticoagulant baits from Rabi 2003-04 and achieved significant results. From that year onwards rodent control campaigns have become regular in these districts due to visible increase in rice productivity. The funding for procurement of inputs was provided by Department of Agriculture and Cooperation, Ministry of Agriculture under macro management scheme in agriculture and from 2010 from National plan on Rodent Pest Management. The National Plan on Rodent Pest Management has been discontinued 3 years after its grand launch due to unknown reasons in spite of its percolation at gross root level.

## 3.2. Guidelines for organizing the rodent control campaigns in the State

Based on the result obtained in respective rodent control campaigns several guidelines were formulated and being adopted by the field extension functionaries for successful results in rodent control.

### 3.2.1. Technical guidelines

- a) In each district, the rodent control campaigns are to be started in villages with known rodent problem and suitable dates are to be stipulated and the schedule should be implemented in all those villages on the stipulated dates without fail.
- b) Poison baits should be prepared preferably at a common place in the village in stipulated time and made available to the farmers at that place.
- c) Farmers should contribute the bait material and meet the operational costs.
- d) Poison baits should be distributed to all the farmers as per the area requirement.
- e) The rodenticide treatment has to be covered in the cropped area, including common sites, roads, canals, drain bunds, porambokes, waste lands etc. Simultaneous treatment has to be taken up in all the areas.
- f) The Gram Panchayat should bear the cost of bait material and operational charges required to treat the waste lands and other Government lands etc. (no mans lands).
- g) The programme has to be organized on community approach keeping village as a unit.
- h) Co-ordinate and motivate all institutional agencies at village level for this massive Rodent Control Campaign.

### 3.2.2. Administrative guidelines:

#### A) Establishment of village level committees

For proper implementation of the rodent campaign at village level, a committee may be formed with the following members.

1. Gram Sarpanch
2. Village Administrative Officer
3. M.P.T.C. Member
4. Progressive Farmer
5. Adarsha Rythulu
6. R.M.G. Members

#### B) Accounting procedure to be followed:

1. The distribution of Rodenticides under free of cost / 100% subsidy should be done according to the instructions laid down in the Agricultural department manual.
2. A separate stock Register should be maintained for this purpose at Asst. Director of Agriculture's office and necessary stock entries should be made on receipt from the supplying firm and the stocks should be given to the concerned Agricultural Officers under proper acknowledgment in the first instance.

#### C) Publicity and Propaganda:

1. Wide publicity should be given about Rodent Control Programme by tom-tom and mass-media, by distribution of handouts, pamphlets and through farmers meetings at village level. The Agricultural Officer should appraise of the programme to Gram Sarpanch, M.P.P. President and MPTC Members.
2. The concerned Asst. Director of Agriculture are requested to appraise the programme to the local MLAs, MPs, MPP Presidents and Z.P.T.C. Members about the impact of the programme and request for their participation for successful implementation of the programme.

3. The Agricultural Officers and Asst. Directors of Agriculture concerned will personally held responsible for the proper organization and distribution of Rodenticides.
4. The Asst. Directors of Agriculture are requested to contact the other sister departments like Revenue, Panchayat Raj and other voluntary organizations for proper implementation of the programme. The Asst. Directors of Agriculture are requested to take this item of work with special care and interest in time for successful implementation with proper evaluation.
5. The particulars of area covered under rodent control campaign and success achieved along with data on burrow number and crop loss before and after the campaign to are to be technically analyzed by the experts.
6. The progress report of rodent control campaign mandal wise may be informed to this office in the following Proforma I and Proforma II.



Awareness Meetings



Tom-tom



Through Public Transport



Wall Posters

Fig. 4 Means and Modes of Publicity for community rodent campaigns



## PROFORMA-I

S.No.	Mandal	Total paddy area sown (ha.)	Area treated with rodenticide in ha, (cropped area and no man lands).	No. of Live Burrows			% tiller damage			Productivity (Kgs/ha.) (as per CC experiments)	Remarks
				Before treatment	After treatment	% control success	Before treatment	After treatment	% control success		
1	2	3	4	5	6	7	8	9	10	11	

## PROFORMA-II

S.No.	Mandal	No. of Revenue villages and hamlets covered	Area treated with Bromodialone chemical	Quantity of Chemical used	Expenditure incurred on chemical (No.)	No. of posters supplied	Expenditure incurred (Rs.)	No. of pamphlets supplied	Expenditure incurred (Rs.)	Expenditure incurred on Publicity & Propaganda	Total expenditure	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13

### D) Observations to be taken by the Observer

The following observations may be taken by the observers during their visit to districts:

Particulars of circulars issued from JDA office on schedule and guidelines

Circular No. and Date	No. of Proposed Villages	Area	Dates

Stock and issue situation at JDA office

Name of the supplier	Quantity allotted to the District	Quantity Received	Quantity Delivered	Remarks

Stock and issue at ADA point of visit

Name of the Sub Division	Quantity allotted	Quantity Received	Quantity issued till date	Stock available

Chemical issued to the villages on the day of visit

Date	Village	Chemical used	Bait material contributed	Farmers Benefitted

### Availability of antidote in nearby pharmacy

Name of Sub Division	No. of pharmacy points where antidote vitamin K1 is available

### Rodent infestation in the areas of visit

Name of villages visited	Rodent Infestation (burrows / ha)	Rodent infestation (% Damage incidence)	Rodent infestation after last campaign	Remarks (Rodent infestation observation)

The visiting member also may take one observation of infestation level (burrow count) at each village at one randomly selected plot and the same may be given in remarks

### E) Checklist

- Particulars of circulars issued from JDA office on schedule and guidelines
- Stock and issue situation at JDA office
- Stock and issue at ADA point of visit
- Chemical issued to the villages on the day of visit
- Availability of antidote in nearby pharmacy
- Rodent infestation in the areas of visit
- List of beneficiaries displayed at panchayat offices
- Procedure of bait preparation at community point
- Issue of bait packets to the farmer beneficiaries
- Suggestions received from the farmers/committees
- Any difficulties faced during the campaign
- Any other observations and impressions

### F) Terms of Reference

The following Terms of Reference could be followed by the Supervisory Officers overseeing the anti-rodent campaigns:

- To verify of receipts of the rodenticide, its stock and necessary entries in the stock registers—at District level and visiting mandals

2. To verify letters issued to the ADA/AOs on the schedule of campaigns in identified villages with guidelines to follow
3. To verify formation of village committees of visiting villages and lists of beneficiary farmers put up at public display
4. To interact with local farming community including Sarpanches of the campaign villages
5. To check the method of bait preparation at community level and issue of the prepared bait material to the beneficiaries

### 3.3. Action Plan for organizing community rodent control campaigns

The day to day activities to be performed while organizing the campaigns using bromadiolone are enlisted below.

- DAY-1 : Close all the burrows in the fields, field bunds, porambokes, canal bunds railway tracks, Roads, Barren lands etc.
- DAY-2 : Count the re-opened burrows and treat the burrows with Bromadiolone (0.005%) bait packet@ 10g/burrow.
- DAY - 10 : Observe there-open edburrows and repeatstep2.
- DAY - 15 : Observe the re-opened burrows and evaluate success of control through burrow count and damage index methods.

#### **NOTE:**

- a) Care should be taken while handling Bromadiolone CB to avoid toxicity to non target animals.
- b) Evaluation of rodent control success should be done.
- c) The list of farmer beneficiaries may be prepared on the day of poison bait distribution and exhibited at Gram Panchayat Office.
- d) The stocks will be made available at Sub-Divisional Asst. Director of Agriculture's Office and will be distributed to farmers by the Agricultural Officer / Agricultural Extension Officer on acknowledgment, at free of cost on filing the application form prescribed.
- e) Rodent surveillance should be done through burrow count and damage appraisal methods.
- f) Stocks of the Antidote for Bromadiolone - vitamin K1 – may be ensured with pharmacists.



a. Identification of live burrows



b. Preparation of poison bait



c. Packeting of poison bait



d. Pocketing of poison bait packets

**Fig. 5 Stages in Organization of Community Rodent Control Campaigns**



Participation of experts in WG Dist.



Participation of DOA officials in EG Dist.

**Fig. 6 Community Rodent Control Campaigns organized by DOA**

The details of rodent control campaigns organized in Andhra Pradesh State in rice crop are as below:

Table : Anti rat campaigns organized by the Department of Agriculture

S.No.	Year / No. of districts covered	Name of the district	Area treated (lakh ha)	% Rodent Control (in terms of reduction in tiller damage)
1	2004 -05 - (3)	Krishna	0.82	68.00
		East Godavari	1.81	67.00
		West Godavari	1.49	86.00
		<b>Total / Average</b>	<b>4.12</b>	<b>73.66</b>
2	2005 -06 - (3)	Krishna	0.72	63.00
		East Godavari	1.98	66.00
		West Godavari	1.64	78.30
		<b>Total / Average</b>	<b>4.34</b>	<b>69.10</b>
3	2006 -07 - (3)	Krishna	1.50	72.00
		East Godavari	1.47	67.00
		West Godavari	1.21	74.50
		<b>Total / Average</b>	<b>4.18</b>	<b>71.16</b>
4	2007 -08 - (4)	Krishna	2.30	71.40
		East Godavari	1.69	83.00
		West Godavari	1.97	75.90
		Guntur	1.63	73.81
		<b>Total / Average</b>	<b>7.59</b>	<b>76.02</b>
5	2008 -09 - (6)	Krishna	1.32	78.00
		East Godavari	1.83	84.96
		West Godavari	1.99	80.47
		Khammam	0.35	82.81
		Karimnagar	2.15	80.00
		Nalgonda	0.63	78.00
		<b>Total / Average</b>	<b>8.27</b>	<b>80.70</b>
6	2017 (K)	West Godavari	1.99	74.0
7	2018 (K)	West Godavari	1.99	72.2



The expenditure incurred for implementation is as below

S.No.	Year	Expenditure incurred (Rs. In Lakhs.)
1	2004 - 05	55.55
2	2005 - 06	44.25
3	2006 - 07	55.97
4	2007 - 08	93.97
5	2008 - 09	86.08

The achievements of rodent control campaigns as seen in terms of productivity (due to crop saved) and expenditure by the Government in Telugu States in a year are indicated below.

S.No.	District	Area Treated (Lakh hectares)	Reduction of tiller damage by rodents (%)	Crop saved due to rodent control (Q/ha)	Expenditure incurred* (In Rs./ha)
1	Krishna	1.32	10.00	5.46	12.00
2	East Godavari	1.83	10.73	7.44	12.01
3	West Godavari	1.99	12.77	4.05	12.00
4	Khammam	0.35	04.51	1.43	13.12
5	Karimnagar	1.39	12.40	6.82	07.32
6	Nalgoda	0.48	05.00	2.38	12.50
	<b>Total</b>	<b>7.36</b>	<b>9.23</b>	<b>4.59</b>	<b>11.49</b>

#### 4. Role played by AINP on VPM Project:

KAP analysis:

Social engineering activity on rodent control was organized under participatory adoptive research in paddy crop by the project center since its inception. Before implementing the actual program, Knowledge, Attitude and Practice (KAP) analysis will be conducted in the villages of the district. It revealed that 70% of the farmers were moderate in their knowledge about rodents and rodenticides and only 30% of the farmers were high in their knowledge and adopting the rodent control practices correctly. The attitude of

the farmers towards rodent control showed that 60% of them were secondary adopters and 25% were primary adopters and about 15% were laggards. Appropriate motivational media has been selected and utilized for individual category of farmers as detailed below

Score (%) -Attitude	Category	Motivational media
> 90	Innovators	Media and publicity
80 - 90	Primary adopters	Training programmes
40 - 80	Secondary adopters	Demonstrations & interactions
< 40	Laggard	Meetings and interactions
Score for knowledge and practice levels: >80%-High; 50-80%-Moderate; < 50%-Low		

Besides organizing the community rodent control campaigns in participatory adoptive mode in their adopted villages, project also extend technical support to the Department of Agriculture at every step of the program. During the campaign period farmwomen were also involved in preparation of bait, packeting, which usually taken in a central point of the village i.e., Gram Panchayat or farmers society buildings.

Impact analysis was carried out after the treatment by random sampling of live burrow counts, and tiller damage to arrive percent rodent control success. The data showed that the yields were increased by 150-225 kg/acre, with monitory benefit of Rs.800 to Rs.1,050 per acre in campaign area.



Awareness creation by project scientists



Participation of students

**Fig. 7 Social engineering by AINP on VPM**

This brings clearly the fact that the rodent control campaigns, if organized at community level will bring significant additional production of the rice, which otherwise would have gone as food to rodent pests.

### For further reading:

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[illegible]

### A. EFFECTIVE PERIOD

## \* POISON BAIT

## \* FUMIGATION

## B. CRISIS PERIOD

WITH NATURAL SMOKE /  
ALUMINIUM PHOSPHIDE.



**All India Network Project on Vertebrate Pest Management**  
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