

**RESEARCH ARTICLE :**

# Extent of adoption of ANGRAU technologies of Paddy crop in Kadapa district of Andhra Pradesh

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**KEY WORDS:**Technologies,  
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**SUMMARY :** The study was conducted to analyse the extent of adoption of ANGRAU technologies of paddy crop in Kadapa district of Andhra Pradesh. Mainly six mandals were selected based on the paddy growing areas. From six mandals 12 villages were selected and from each village 5 farmers were selected randomly. Total sample size for the study was 60 farmers. The results revealed that the varieties adopted by most of the paddy growing farmers (41.67%) adopted NDLR-7 and majority (83.33%) of the farmers discontinued variety BPT-5204. The recommendations with regard to crop production technologies applying well decomposed FYM/Compost @200kg/5cents nursery there is 100 per cent adoption by the farmers. With respect to weed management aspects application of pretilachlor @500ml/acre or oxadiargyl @35-40g/acre within 3 to 5 days of transplanting recorded 81.67 per cent adoption by the farmers. In case of plant protection measures for BPH pest, spray acephate @1.g or monocrotophos @2.2ml or ethofenprox@2ml or thiamethoxam@0.25g or buprofezin 1.6ml or pymetrozine 0.6g or imidacloprid+ethiprole 0.2g or dinotefuron 0.4g/l there is 80 per cent adoption by the farmers.

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## BACKGROUND AND OBJECTIVES

The Acharya N.G. Ranga Agricultural University (ANGRAU) has been bestowed with the responsibility of teaching, research and extension education and therefore, it has to effectively utilise its human resources to transfer the technologies developed by its research personnel to the farmers' fields, to improve productivity and to generate higher income to the farmers. The university fulfils its mandate through integrated programme of education, research and extension units located across the state. In the extension stream KVKs play a major role in dissemination of

latest technologies. So this present study is undertaken to know how far the technologies/recommendations given by the ANGRAU are adopted by the farmers of Kadapa district. The technologies disseminated under paddy was taken for the study because paddy crop occupies the major area in the district with the following objectives.

**Objectives :**

- To study the extent of adoption of ANGRAU technologies on selected major crop of YSR district.
- To study the reasons for non-adoption

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of recommended technologies in the major crop.

## RESOURCES AND METHODS

The study was carried out in Y S R district of Andhra Pradesh. *Ex-post facto* research design was used in the study. Mainly six mandals were selected randomly where paddy is the major crop. From each mandal two villages were selected randomly. From each village five respondents were selected randomly for the study. Thus, the study comprises of 6 mandals, 12 villages and 60 farmers. The statements regarding the ANGRAU technologies was prepared in two point continuum *i.e.* adopted and not adopted. A list of ANGRAU varieties on paddy crop was prepared in three categories *i.e.* adopted, not adopted and discontinued. The interview schedule was designed in line with the objectives of the study. Both primary and secondary data was collected for the study. Data was analyzed using descriptive statistic tools like frequency, percentage, mean, standard deviation.

| Sr. No. | Mandal      | Selected villages          |
|---------|-------------|----------------------------|
| 1.      | Chapadu     | Gunthachepadu<br>Ramapuram |
| 2.      | Vallur      | Chinnalebaka<br>Thapettla  |
| 3.      | Kadapa      | Pulampalli<br>Bachhampalli |
| 4.      | Siddavattam | Bakrapeta<br>Pedapalli     |
| 5.      | Nandalur    | Nadimpalli<br>Boyanapalli  |
| 6.      | Prodturu    | Thallapuram<br>Lingapuram  |

## OBSERVATIONS AND ANALYSIS

The respondents were distributed in different categories based on their selected profile characteristics and were presented in the following tables and interpreted through frequencies, means, percentages and standard deviation.

### Age:

The Table 1 shows that the majority of respondents (70%) belong to the middle age category followed by young (16.67%) and old age (13.33%).

### Education:

The results shown in the above Table 1 indicate that the majority (28.33%) of the respondents belong to upper primary education followed by Primary school (23.33%), High School (21.67%), functionally literate (13.33%), no schooling/illiterate (11.67%) and college education (1.67%).

### Caste:

From the above Table 1 we can conclude the majority (56.67%) of the respondents were under open category followed by backward caste (20.33%) schedule caste (16.67%) and schedule tribes (6.67%).

### Farming experience:

The Table 1 describes that 55 per cent of the respondents having medium level of farming experience followed by 23.33 per cent with high level farming experience and 21.67 per cent of SHC respondents having low level of farming experience.

### Annual income:

An over view of the Table 1 indicated that 53.33 per cent of the respondents had medium level of annual income, followed by low and high 25 and 21.67 per cent, respectively.

### Land holdings:

On perusal of Table 1 it is clear that majority (35%) of respondents belonged to small land holdings followed by medium (30%), semi-medium (15%), marginal (11.67%) and large farmers (8.33%).

### Source of information:

From the Table 1 it is observed that the majority of respondents (53.33%) were getting information from input dealers, followed by neighbours (33.33%) and AO (13.33%).

### Family size:

It could be comprehended from the Table 1 that a majority of the respondents were having small family size (76.67%) and large family size (23.33%).

### Family type:

Results furnished in Table 1 indicated that majority (68.33%) of the respondents were having nuclear type of family followed by joint family (31.67%).

## Extent of adoption of ANGRAU technologies of Paddy crop

| <b>Table 1 : Socio-economic characteristics of the paddy farmers</b> |                       |                                  |             |       |
|--|-----------------------|----------------------------------|-------------|-------|
| Sr. No.  | Variables             | Category                         | Respondents |       |
|  |                       |                                  | F           | P     |
| 1.   | Age                   | Young (<38 years)                | 10          | 16.67 |
|  |                       | Middle (39- 61 years)            | 42          | 70    |
|  |                       | Old (>61 years)                  | 8           | 13.33 |
|  |                       | Total                            | 60          | 100   |
| 2.   | Education             | No schooling/illiterate          | 7           | 11.67 |
|  |                       | Functionally literate            | 8           | 13.33 |
|  |                       | Primary school                   | 14          | 23.33 |
|  |                       | Upper primary                    | 17          | 28.33 |
|  |                       | High School                      | 13          | 21.67 |
|  |                       | College education                | 1           | 1.67  |
|  |                       | Total                            | 60          | 100   |
| 3.   | Caste                 | Schedule caste                   | 10          | 16.67 |
|  |                       | Schedule tribe                   | 4           | 6.67  |
|  |                       | Backward caste                   | 12          | 20.33 |
|  |                       | Open category                    | 34          | 56.67 |
|  |                       | Total                            | 60          | 100   |
| 4.   | Farming Experience    | Low (<13 years)                  | 13          | 21.67 |
|  |                       | Medium (14-25)                   | 33          | 55.00 |
|  |                       | High (>25)                       | 14          | 23.33 |
|  |                       | Mean=25.47<br>SD =12.25<br>Total | 60          | 100   |
| 5.   | Annual Income         | Low (<50000)                     | 15          | 25    |
|  |                       | Medium (50001 -200000)           | 32          | 53.33 |
|  |                       | High (>200000)                   | 13          | 21.67 |
|  |                       | Mean=1.5<br>SD =1<br>Total       | 60          | 100   |
| 6.   | Land Holdings         | Marginal – less than 1 hectare   | 7           | 11.67 |
|  |                       | Small – 1-2 hectare              | 21          | 35    |
|  |                       | Semi-medium – 2-4 hectare        | 9           | 15    |
|  |                       | Medium – 4-10 hectare            | 18          | 30    |
|  |                       | Large – 10 hectare and above     | 5           | 8.33  |
|  |                       | Total                            | 60          | 100   |
| 7.   | Source of information | AEO                              | -           | -     |
|  |                       | AO                               | 8           | 13.33 |
|  |                       | ADA                              | -           | -     |
|  |                       | Scientist                        | -           | -     |
|  |                       | Neighbor                         | 20          | 33.33 |
|  |                       | Relatives                        | 32          | 53.33 |
|  |                       | Total                            | 60          | 100   |
| 8.   | Family size           | Small (upto 5)                   | 46          | 76.67 |
|  |                       | Large (>5)                       | 14          | 23.33 |
|  |                       | Total                            | 60          | 100   |

Table 1 : Contd.....

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|     |                      |                      |       |       |
|-----|----------------------|----------------------|-------|-------|
| 9.  | Family type          | Nuclear              | 41    | 68.33 |
|     |                      | Joint                | 19    | 31.67 |
|     |                      | Total                | 60    | 100   |
| 10. | Social participation | No membership        | 60    | 100   |
|     |                      | Membership           | -     | -     |
|     |                      | Total                | 60    | 100   |
| 11. | Extension contact    | Low                  | 24    | 40    |
|     |                      | Medium               | 15    | 25    |
|     |                      | High                 | 21    | 35    |
|     |                      | Mean=1.95<br>SD=0.87 | Total | 60    |

**Social participation:**

The results from Table 1 revealed that 100 per cent of the respondents were not having membership.

**Extension contact:**

An overview of the Table 1 indicated that majority (40%) of the respondents had low extension contact, followed by high (35%) and medium level of extension contact (25%)

From the Table 2 it is observed that the paddy varieties released by ANGRAU BPT-5204 variety was

discontinued by 83.33 per cent of the farmers due to various reasons presented in Table 3 and 16.67 per cent were adopted the variety. With respect to NLR-34449 (Nellore masuri), JGL-1798 (Jagithyal sanallu), NLR-33892 (Pardiva), MTU-1010 (Sridruthi), Swetha, MTU-1121 and RNR-145 variety 100 per cent of the farmers not adopted the varieties. In case of JGL-384 (Telagana sona) 66.67 per cent of the farmers not adopted it and 33.33 per cent adopted it. With regard to NDLR-7 58.33 per cent of farmers not adopted and 41.67 per cent adopted it. In case of NDLR-8, 75 per cent of the

Table 2 : Adoption levels of ANGRAU varieties

| Sr. No. | Varieties | Adopted |       | Not adopted |       | Discontinued |       |
|---------|-----------|---------|-------|-------------|-------|--------------|-------|
|         |           | F       | P     | F           | P     | F            | P     |
| 1.      | BPT-5204  | 10      | 16.67 | -           | -     | 50           | 83.33 |
| 2.      | NLR-34449 | -       |       | 30          | 100   | -            |       |
| 3.      | JGL1798   | -       |       | 30          | 100   | -            |       |
| 4.      | JGL-384   | 20      | 33.33 | 40          | 66.67 | -            |       |
| 5.      | NDLR-7    | 25      | 41.67 | 35          | 58.33 | -            |       |
| 6.      | NDLR-8    | 15      | 25    | 45          | 75    | -            |       |
| 7.      | NLR-33892 | -       |       | 60          | 100   | -            |       |
| 8.      | MTU-1010  | -       |       | 60          | 100   | -            |       |
| 9.      | SWETHA    | -       |       | 60          | 100   | -            |       |
| 10.     | MTU-1121  | -       |       | 60          | 100   | -            |       |
| 11.     | RNR-15048 | 10      | 16.67 | 50          | 83.33 | -            |       |

Table 3 : Reasons for discontinued varieties

| Sr. No. | Variety                  | Reasons for discontinued   | F  | P  |
|---------|--------------------------|--|----|----|
| 1.      | BPT-5204<br>(50 Members) | May be it wont grow in <i>Rabi</i> season  | 10 | 20 |
|         |                          | Feed back from other farmers in the village that the new variety (JGL-384) is giving good yields | 6  | 12 |
|         |                          | Unavailability of water during June-July month   | 25 | 50 |
|         |                          | For adopting new variety   | 5  | 10 |
|         |                          | Getting lower yields than the variety NDLR-7   | 4  | 8  |

farmers not adopted and 25 per cent of the farmers adopted it. Pertaining to RNR-15048 variety 83.33 per cent of the farmers not adopted and 16.67 per cent not adopted it.

From the Table 2 it is clear that the BPT-5204 variety of paddy was discontinued by 50 farmers due to the above reasons mentioned in the Table 3. The major reason for discontinuing was the unavailability of water during June-July months (50%). The second reason is that farmers are in belief that this variety won't grow in *Rabi* season (25%). The third reason is that the variety

JGL-384 is getting good yields than the other varieties is the feedback from the neighbouring farmers made them to discontinue the BPT-5204 variety (12%). The fourth reason is the 10 per cent of the farmers were interested in adopting new varieties. The fifth reason is that 8 per cent of the farmers expressed that BPT-5204 getting lower yields than NDLR-7.

With regard to adoption levels of ANGRAU recommendation in paddy crop is presented in Table 4. With respect to crop production measures the first recommendation *i.e.* apply well decomposed FYM/

**Table 4: Adoption levels of ANGRAU technologies**

| Sr. No.                          | Recommendation  | A  |       | NA |       |
|----------------------------------|---|----|-------|----|-------|
|                                  |   | F  | P     | F  | P     |
| <b>Crop production measures</b>  |   |    |       |    |       |
| 1.                               | Apply well decomposed FYM/Compost @200kg/5cents nursery   | 60 | 100   | -  | -     |
| 2.                               | 25-50% of recommended nitrogen through green manures<br>1kg N-1kg P-1kg K/5 cents nursery   | 42 | 70    | 18 | 30    |
| 3.                               | Nutrient recommendation 32-24-16 kg/acre ( <i>Kharif</i> )  | 22 | 36.67 | 38 | 63.33 |
| 4.                               | Nutrient recommendation 48-24-16 kg/acre ( <i>Rabi</i> )  | 33 | 55    | 27 | 45    |
| 5.                               | Recommended 20 cm alleyways at every 2 metres   | 33 | 55    | 27 | 45    |
| 6.                               | Initiate puddling at least 15 days before transplanting   | 60 | 100   |    |       |
| 7.                               | Maintain shallow depth of water (2-3 cm) during tillering phase of the crop and maintain 5 cm of water during panicle initiation to psychological maturity                                | 60 | 100   | -  | -     |
| <b>Weed management</b>           |   |    |       |    |       |
| 1.                               | For weed management application of pretilachlor @500ml/acre or Oxadiargyl @35-40g/l of water within 3 to 5 days of transplanting  | 49 | 81.67 | 11 | 18.33 |
| 2.                               | To control monocot weed Cyhalosop p butyl 2ml/lit   | 43 | 71.66 | 17 | 28.33 |
| 3.                               | 2,4-D SS@400g/acre at 20-25 DAT to control board leaves   | 43 | 71.66 | 17 | 28.33 |
| 4.                               | To control of monocots and dicots bispyribac sodium 100ml/acre  | 20 | 33.33 | 40 | 66.67 |
| <b>Plant protection measures</b> |   |    |       |    |       |
| 1.                               | For leaf blast at the initiation of disease apply Tricyclazole 75 WP @0.6g/lit or Isoprothiolane 40 EC @ 1.5ml/l  | 41 | 68.33 | 9  | 15    |
| 2.                               | For neck blast apply Isoprothiolane 40 EC @ 1.5ml/l or Kasugamycin 2.5 ml/lit of water  | 39 | 65    | 21 | 35    |
| 3.                               | For sheath blight disease at the initiation of the disease apply Hexaconazole 5EC @2ml/l or Validamycin 3L @2ml/l or Propiconazole 25 EC@1ml/l  | 33 | 55    | 27 | 45    |
| 4.                               | For stem borer and leaf folders Cartaphydrochloride 2g or acephate 1.5g or Chlorantiniiprole 0.3ml/litre of water or apply Cartaphydrochloride 4G@8kg/acre                                | 45 | 75    | 15 | 25    |
| 5.                               | For Gallmidge apply phorate 10G@12.5kg/ha or Carbofuran 3G@10kg/acre at 15DAT in 1-2 inches of standing water   | 47 | 78.33 | 13 | 21.67 |
| 6.                               | For BPH spray acephate @1.g or monocrotophos @2.2ml or Ethofenprox@2ml or Thiamethoxam@0.25g or Buprofezin 1.6ml or Pymetrozine 0.6g or imidacloprid+Ethiprole 0.2g or Dinotefuron 0.4g/l | 48 | 80    | 12 | 20    |

Compost @200kg/5cents nursery 100 per cent of the selected respondents adopted it. In case of second recommendation 25-50 per cent of recommended nitrogen through green manures 1kg N-1kg P-1kg K/5 cents nursery 70 per cent of the selected respondents adopted and 30 per cent not adopted. With regard the third recommendation nutrient recommendation 32-24-16 kg/acre (*Kharif*) 55 per cent of the selected respondents adopted and 45 per cent not adopted. In case of the fourth recommendation recommended 20 cm alleyways at every 2 metres 55 per cent of the selected respondents adopted and 45 per cent not adopted. With respect to the fifth recommendation Initiate puddling at least 15 days before transplanting 100 per cent of the selected respondents adopted. With regard to the sixth recommendation maintain shallow depth of water (2-3 cm) during tillering phase of the crop and maintain 5 cm of water during panicle initiation to psychological maturity 100 per cent of the selected respondents adopted.

In case of weed management aspects the first recommendation application of pretilachlor @500ml/acre or oxadiargyl @35-40g/l of water within 3 to 5 days of transplanting 81.67 per cent of the selected respondents adopted and 18.33 per cent not adopted. With regard to the second recommendation to control monocot weed cyhalosop p butyl 2ml/litre 81.67 per cent of the selected respondents adopted and 18.33 per cent not adopted. In case of third recommendation 2,4-D SS@400g/acre at 20-25 DAT to control board leaves 71.66 per cent of the selected respondents adopted and 28.33 per cent not adopted. In case of fourth recommendation control of monocots and dicots bispyribac sodium 100ml/acre 66.64 per cent of the selected respondents 66.64 per cent not adopted and 33.33 per cent adopted.

With respect to plant protection measures the first recommendation *i.e.* For leaf blast at the initiation of disease apply tricyclazole 75 WP @0.6g/liter or Isoprothiolane 40 EC @ 1.5ml/l 68.33 per cent of the selected respondents adopted it and 15 per cent not adopted. In case of second recommendation for neck blast apply Isoprothiolane 40 EC@1.5ml/l or kasugamycin 2.5ml/litre of water 65 per cent of the selected respondents adopted and 35 per cent not adopted. With regard the third recommendation for sheath blight disease at the initiation of the disease apply hexaconazole 5EC

@2ml/l or Validamycin 3L @2ml/l or Propiconazole 25 EC@1ml/l 55 per cent of the selected respondents adopted and 45 per cent not adopted. In case of the fourth recommendation recommended for stem borer and leaf folders cartaphydrochloride 2g or acephate 1.5g or chlorantiniliprole 0.3ml/litre of water or apply Cartaphhydrochloride 4G@8kg/acre 75 per cent of the selected respondents adopted and 25 per cent not adopted. With respect to the fifth recommendation for gallmidge apply phorate 10G@12.5kg/ha or carbofuran 3G@10kg/acre at 15DAT in 1-2 inches of standing water 78.33 per cent of the selected respondents adopted and 21.67 per cent not adopted. With regard to the sixth recommendation for BPH spray acephate @1.g or monocrotophos @2.2ml or ethofenprox@2ml or thiamethoxam@0.25g or buprofezin 1.6ml or pymetrozine .6g or imidacloprid+ethiprole 0.2g or dinotefuron 0.4g/l 80 per cent of the selected respondents adopted and 20 per cent not adopted (Savita and Lalita, 2017).

### Conclusion:

With regard to technologies developed by the ANGRAU there is maximum adoption by the farmers in the district except the rice varieties. It may be concluded that the Krishi Vigyan Kendra contributed positively in enhancing the adoption level of farmers in various aspects of agricultural production technologies. KVK practices created great awareness and motivated the other farmers to adopt appropriate production technologies. Indeed the efforts of the KVK seemed to have a positive effect in enhancing the farmers' technical knowledge on agricultural production technologies. Due to the interventions of KVK scientists in training, demonstrations activities, on farm trials and other extension activities helped in enhancing the knowledge level of farmers which in turn led higher adoption of agricultural production technologies.

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