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**RESEARCH NOTE**

# Effect of pulse production training programmes on knowledge levels of farmers of Prakasam district of Andhra Pradesh

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The present investigation was carried out in Prakasam district during the year 2015-16. Twenty eight blackgram farmers and twenty seven bengalgram farmers were trained by District Agricultural Advisory and Transfer of Technology Centre during the year 2015-16. The effectiveness of the training programme was assessed by studying knowledge levels of the farmers before and after participating in training programme. Majority of the blackgram farmers had correct knowledge on fertilizers management (82.14%), pest management (78.57%), YMV resistant varieties (75.00%), weed management (71.43%), seed treatment (67.86%), drought management (64.29%) and disease management (60.71%) after getting trained. In post test majority of bengalgram farmers had correct knowledge on pest management (81.48%), fertilizer management (77. 78%), irrigation management (70.37%), seed rate (66.67%), seed treatment and disease management (62.96%). Training programmes on blackgram and bengalgram production technologies had resulted in considerable knowledge gain of farmers. Education, extension contact, innovativeness, trainings undergone and mass media use were the variables having highly significant relation with knowledge gain of blackgram farmers. Extension contact, innovativeness, trainings undergone and mass media exposure of bengalgram farmers had highly significant relation with their knowledge gain.

**Key words**: Knowledge gain, Pulse, Training

Pulses are very important in Indian agriculture both in terms of enriching soil health and for food and nutritional security of country's ever growing population. India is leading in pulses production with its contribution of about thirty four percentage of the world's total area (261.66 lakh hectare area out of world's total area 759.83 lakh ha) and 25.29 per cent (171.10 lakh tons) of the total pulse production of the whole world Virendrakumar *et al.* (2016).). Even though pulses production increased significantly during the last decade but continuing the rapid growth is a challenge for researchers, extension agencies and policy makers to fulfill the domestic demand. Pulses production in India has not kept up with growth in demand calling for import to the tune of 2.0 to 4.0 million tones (Raj *et al.,* 2013). The productivity of pulses in India (694 kg/ha) is lower than most of the major pulse producing countries. India grows a variety of pulse crop under a wide range of agro-climatic conditions. The major pulse crops grown in India are black gram, green gram, chickpea, pigeonpea, lentil and fieldpea, in which India produces 70 per cent of worlds' black gram production and accounts for 10 per cent of country's total pulse production (Gowda *et al.,* 2013). India ranked first in terms of chickpea production and consumption in the world. About 65% of global area with 68% of global production of chickpea is contributed by India. Pulses being predominantly rain fed crops grown in constrained and limiting factor environment, the increase in productivity had remained a major challenge for several decades. There has not been remarkable increase in area and productivity of pulses as witnessed in other commodities over the years. There has been number of technological breakthroughs with promise to raise the productivity levels which need to be demonstrated at farmers' fields with their active participation in training programmes so as to build their confidence in new technologies.

One of the major mandatory activities of District Agricultural Advisory and Transfer of Technology Centre (DAATTC) is to provide training to farmers and improve the level of knowledge of the trainees about the improved farm practices, because knowledge is cognitive component of individual's mind and plays an important role in covert as well as overt behaviour and individuals with a greater knowledge of technical nature of improved practices would lead to a high adoption possibly because knowledge is not inert. Once knowledge is acquired and retained, it undergoes and produces changes in the thinking process and of mental alchemy. Blackgram and bengalgram were the two important crops cultivated in Prakasam district with an area of 55,000 ha and 92,000 ha respectively, (Directorate of Economics & statistics, Govt. Of India,2016), hence DAATTC, Ongole, Prakasam District had organized training programmes to farmers on blackgram and bengalgramt cultivation aspects during the year 2015-16. With this background the pre- and post-evaluation has been conducted to know the knowledge of the trainees before and after the training to understand how the training programmes have changed the knowledge of the trainees.

The present evaluation study was conducted at the DAATTC, Ongole, Prakasam district of Andhra Pradesh state. Two training programmes for two batches of 28 blackgram farmers and 27 bengalgram farmers were organized by DAATTC, Ongole during the year 2015-16. To understand the level of knowledge on different aspects of blackgram and bengalgram improved agricultural technologies of the participants before and after the training programme a pretested questionnaire was used and the data collected were pooled from both the batches and analyzed using statistical tools. For correct answer score '1' was given and for wrong answer '0' was given. The marks obtained by the participants in both the tests were recorded and analyzed to evaluate the knowledge gain. Correlation analysis was carried out to assess the relationship between profile characteristics of farmers and their knowledge gain through training.

The effect of training programme on the knowledge level of respondents about the blackgram production technology was presented in table 1 and 2.The data in pre test revealed that forty six per cent of the blackgram farmers were with low

Table 1. Knowledge levels of the blackgram farmers before and after conducting training programmes n=28

| Category | Pre test | | | Post test | | | Knowledge gain | | |
|---|---|---|---|---|---|---|---|---|---|
| | Range | Freq. | % | Range | Freq. | % | Range | Freq. | % |
| Low (<Mean-SD) | <1.312 | 13 | 46.43 | <2.96 | 2 | 7.14 | <0.86 | 1 | 3.57 |
| Medium (Mean+/- SD | 1.312 -2.958 | 11 | 39.29 | 2.96-4.88 | 14 | 50.00 | 0.86-2.44 | 15 | 53.57 |
| High(>Mean+SD) | >2.958 | 4 | 14.28 | >4.88 | 12 | 42.86 | >2.44 | 12 | 42.86 |
| Total | | 28 | 100.00 | | 30 | 100.00 | | 30 | 100.00 |
| Mean=2.135 SD= 0.823 | Mean=3.92 SD= 0.96 | | | Mean=1.65 SD= 0.79 | | | | | |

Table 2. Component wise knowledge levels of the farmers on blackgram production technology n=28

| Aspects of training | Pre test | | | | Post test | | | |
|---|---|---|---|---|---|---|---|---|
| | Correct knowledge | | Incorrect knowledge | | Correct knowledge | | Incorrect knowledge | |
| | Freq | % | Freq | % | Freq | % | Freq | % |
| YMV resistant varieties | 4 | 14.29 | 24 | 85.71 | 21 | 75.00 | 7 | 25.00 |
| Seed treatment | 7 | 25.00 | 21 | 75.00 | 19 | 67.86 | 9 | 32.14 |
| Fertilizer management | 8 | 28.57 | 20 | 71.43 | 23 | 82.14 | 5 | 17.86 |
| Weed management | 4 | 14.29 | 24 | 45.71 | 20 | 71.43 | 8 | 28.57 |
| Drought management | 5 | 17.86 | 23 | 82.14 | 18 | 64.29 | 10 | 35.71 |
| Pest management | 10 | 35.71 | 18 | 64.29 | 22 | 78.57 | 6 | 21.43 |
| Disease management | 6 | 21.43 | 22 | 78.57 | 17 | 60.71 | 11 | 39.29 |

knowledge followed by thirty nine percent in medium knowledge group and fourteen per cent of trainees in high knowledge group. In post test half of the trainees had medium followed by forty three per cent with high knowledge followed by seven per cent in low knowledge category. Regarding knowledge gain fifty four per cent trainees were with medium knowledge gain followed by forty three per cent in high knowledge gain category. Very negligible (3.57%) per cent of trainees were with low knowledge gain category. It is therefore, concluded that blackgram farmers had high knowledge after getting trained. These findings were in conformity with that of Akhilesh Kumar and Srivastava ( 2007) and Rathore and Dhakar (2012). The knowledge gain clearly indicates the contribution of the training programme towards their increased knowledge levels on recent research developments *viz.,* YMV resistant varieties, weed management, seed treatment and pest and disease management in blackgram production.

It could be inferred from the Table 2 that in the pre evaluation test majority of the blackgram farmers had incorrect knowledge levels on YMV resistant varieties (85.71%), drought management (82.14%), disease management (78.57%), seed treatment (75.00%), fertilizer management (71.43%), pest management (64.29%) and weed management (45.71%). After getting trained majority of the farmers had correct knowledge on fertilizer management (82.14%), pest management (78.57%), YMV resistant varieties (75.00%), weed management (71.43%), seed treatment (67.86%), drought management (64.29%) and disease management (60.71%). This might be because of their non exposure to recent research findings particularly recently developed YMV resistant varieties, new molecules for pest, disease and weed management and drought mitigating measures before participation in training programme. Severe Yellow Mosaic Virus incidence and drought at flowering stage were the major factors for reduced yields in blackgram hence farmers eagerly learnt recently released YMV resistant varieties by Acharya NG Ranga Agricultural University and drought mitigation measures at critical stages of the crop growth.

Overall knowledge and component wise knowledge levels of the bengalgram farmers were presented in Table 3 and 4. From table 3 it could be noticed that before getting trained equal per cent (48.15%) of the bengalgram farmers were with low and medium knowledge levels followed by 3.70 per cent in high knowledge group. After participating in training programme fifty two per cent farmers were in high knowledge group followed by thirty seven per cent in medium and 11.11 % in low knowledge groups. With respect to knowledge gain almost fifty per cent (48.15%) were in high category followed by forty four per cent in medium and 7.41 % in low knowledge gain categories. This might be because great majority of the trainees had incorrect knowledge on seed rate (92.59%), weed management (88.88%), seed treatment (85.19%), disease management (81.48%), irrigation management (77.78%),fertilizer and pest management (62.96%) due to lack of information on these aspects. After getting exposed to training programmes

Table 3. Knowledge levels of the bengalgram farmers before and after conducting training programmes n=27

| Category | Pre test | | | Post test | | | Knowledge gain | | |
|---|---|---|---|---|---|---|---|---|---|
| | Range | Freq. | % | Range | Freq | % | Range | Freq. | % |
| Low | <4.7 | 13 | 48.15 | <7.77 | 3 | 11.11 | <1.3 | 2 | 7.41 |
| Medium | 4.7 -6.26 | 13 | 48.15 | 7.77-9.526 | 10 | 37.04 | 1.3-2.941 | 12 | 44.44 |
| High | >6.26 | 1 | 3.70 | >9.526 | 14 | 51.85 | >2.941 | 13 | 48.15 |
| Total | | 27 | 100.00 | | 27 | 100.00 | | 27 | 100.00 |
| Mean=5.48 SD= 0.78 | Mean=8.65 SD= 0. 876 | | | Mean=2.12 SD= 0.821 | | | | | |

Table 4. Component wise knowledge levels of the farmers on bengalgram production technology n=27

| Aspects of training | Pre test | | | | Post test | | | |
|---|---|---|---|---|---|---|---|---|
| | Correct knowledge | | Incorrect knowledge | | Correct knowledge | | Incorrect knowledge | |
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Seed rate | 2 | 7.41 | 25 | 92.59 | 18 | 66.67 | 9 | 33.33 |
| Seed treatment | 4 | 14.81 | 23 | 85.19 | 17 | 62.96 | 10 | 37.04 |
| Fertilizer management | 10 | 37.04 | 17 | 62.96 | 21 | 77.78 | 6 | 22.23 |
| Weed management | 3 | 11.11 | 24 | 88.88 | 16 | 59.26 | 11 | 40.74 |
| Irrigation management | 6 | 22.22 | 21 | 77.78 | 19 | 70.37 | 8 | 29.63 |
| Pest management | 10 | 37.04 | 17 | 62.96 | 22 | 81.48 | 5 | 18.52 |
| Disease management | 5 | 18.52 | 22 | 81.48 | 17 | 62.96 | 10 | 37.04 |

majority of the bengalgram farmers had correct knowledge on pest management (81.48%), fertilizer management (77.78%), irrigation management (70.37%), seed rate (66.67%), seed treatment and disease management (62.96%) and weed management (59.26%). Pest and disease management is one of the major factors contributing for increased cost of cultivation as the farmers were habituated to scheduled sprays irrespective of pest and disease incidence. Farmers were trained in identification of pests and diseases, their Economical Threshold Levels and new molecules in pest and disease management which helped them to gain knowledge on these particular aspects. Seed rate was another crucial factor for increased cost of cultivation of the bengalgram cultivation as the farmers believed that to maintain optimum plant stand and to get good yields using increased seed rate is required. Awareness was created through training programme among the respondents on maintenance of optimum plant stand with recommended seed rate by following seed treatment with *Trichoderma viridi* increased the knowledge levels of the farmers. Farmers have gained knowledge on critical stages of irrigation for gaining good returns in bengalgram cultivation.

It could be concluded from Table 5 that education, innovativeness and mass media exposure of blackgram farmers had significant positive relation at 5 per cent level of significance, trainings undergone and extension contact use were having highly significant relation with knowledge gain at 1 per cent level of significance. This might be because these were the major factors facilitating farmers to gain knowledge on blackgram production technology. Age, farming experience and farm size had no significant relation with knowledge gain. Similar results were reported by Virendrakumar *et al.* (2016).

Table 5. Relationship between profile characteristics of blackgram farmers and their knowledge gain n=28

| Variable | Correlation coefficient (r) |
|---|---|
| Age | 0.283NS |
| Education | 0.356* |
| Farming Experience | 0.025NS |
| Farm size | 0.110NS |
| Extension contact | 0.51** |
| Innovativeness | 0.401* |
| Trainings undergone | 0.72** |
| Mass media use | 0.416* |

*- significant at 0.05% level ** - significant at 0.01% level

Table 6. Relationship between profile characteristics of bengalgram farmers and their knowledge gain n=27

| Variable | Correlation coefficient (r) |
|---|---|
| Age | 0.128NS |
| Education | 0.144NS |
| Farming Experience | 0.015NS |
| Farm size | 0.265NS |
| Extension contact | 0.361* |
| Innovativeness | 0.601** |
| Trainings undergone | 0.702** |
| Mass media use | 0.478** |

*- significant at 0.05% level ** - significant at 0.01% level

It is evident from table 6 that extension contact was the variable which had positive relation with knowledge gain at 5% level of significance. The plausible explanation for this result may be that extension contact of respondents facilitates to learn more and gain more information in a given learning situation, so more the extension contact more will be the knowledge of the farmers. Innovativeness, trainings undergone and mass media exposure were the variables having highly significant relation at one per cent level of significance with knowledge gain of the bengalgram farmers. Innovativeness was the major factor motivating famers to get acquainted with recent technologies. More number of trainings participated leads to higher knowledge levels of the farmers. Mass media use was another factor contributing for update the farmers' knowledge on production technologies. Age, education, farming experience, and farm size were found to have no significant relationship with knowledge gain. Results were in line with that of Shakya *et al.*(2008).

Knowledge levels of the farmers after getting trained in both training programmes clearly indicated their knowledge gain through trainings. Adequate knowledge is expected to motivate and inspire the farmers to try out agricultural technology feasible in their situation. Therefore, there is need to give due importance to organize need based training programmes to farmers on major crop production technologies. To be fruitful, the training programmes should be designed based on actual training needs and socio-economic profile of potential trainees. Systematically planned trainings will help to achieve the sustained production and in turn will increase the income and employment in the rural areas.

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