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# Constraint analysis of implementation of Farmers' Field School methodology

**A Manoj* and K Vijayaragavan**

*Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi*

**E-mail: alajangimanoj@gmail.com*

## ABSTRACT

*The present study was conducted to assess the constraints faced by Farmers Field School (FFS) farmers and trainers in implementation of FFS methodology. A total of three districts were selected purposively from three regions of Andhra Pradesh based on the largest area under paddy cultivation. Respondents were selected through simple random sampling procedure. The total sample size was 240 comprising 120 FFS farmers and 120 non-FFS farmers. Garrett's ranking was used to rank the constraints at farmer and trainer level. Study revealed that shortage of integrated crop management (ICM) experts' and 'lack of extension back up' with a mean score 50.03 and 47.35 were the two most important institutional constraints reported by the farmers. With regard to technological constraints 'consumes more time' (67.90) was the most important constraint followed by 'shortage of skilled labour' (49.82). In case of trainers with regard to institutional constraints, 'overlapping of departmental schemes or programmes' and lack of timely supply of inputs' (59.38) were the top most institutional constraints. FFS trainers have opted 'work over load' as premier operational constraint with mean score of 56.18 followed by 'lack of technical work group' (46.75). 'Fragmented lands' and 'Lack of vehicle or transport facility to reach remote area were the most important constraints faced by FFS trainers at village level. With respect to farmer level constraints the 'fear of farmers about ICM technology' with mean a score of 69.33 was ranked first followed by 'the huge subsidy on fertilizers & pesticides' (53.75). Above stated constraints under FFS methodology hindered the effective performance of FFS farmers and trainers.*

***Key words:*** *Constraints, FFS farmers, FFS trainers, FFS methodology*

In recent years, FFSs have been promoted as an effective extension methodology to enhance the competency of farmers in introducing the complex technologies such as integrated pest management (IPM) and ICM practices. FFS is a forum where farmers and trainers debate observations, apply their previous experiences and present new information from outside the community (Godrick, 2004). Thus, FFS as an extension methodology is a dynamic process that is practiced and controlled by the farmers to transform their observations to create a more scientific understanding of the crop / livestock agro-ecosystem that will help them to optimize economic and biological returns on the crop. Though there were many benefits / constraints in implementation of FFS methodology such as shortage of ICM experts, lack of extension backup, time taking initiatives, shortage of skilled labour, overlapping of departmental schemes and lack of timely supply of inputs. A constraint implies a desired outcome coupled with an apparent deficiency, doubt or inconsistency that prevents the outcome from taking place. Hence, the present study was aimed to investigate the constraints encountered by FFS farmers and trainers in implementation of FFS methodology.

The study followed the *ex-post facto* research design. A total of three districts were selected purposively from three regions of Andhra Pradesh based on the area under paddy. The selected districts were West Godavari from Coastal Andhra region, Warangal from Telangana region and Kurnool from Rayalaseema region. A total of six *mandals*, two *mandals* from each

district and two villages from each *mandal* (one FFS village and one non FFS village) were selected based on random sampling. From each FFS and non FFS village, 20 farmers were selected through random sampling method. Thus, the total sample of the study constituted of 240 respondents consisting of 120 FFS farmers and 120 non FFS farmers. In order to get responses from the trainers of FFSs, a sample of 60 trainers of FFS were selected from the extension officials of six *mandals* chosen for the study through random sampling technique. Garrett's ranking technique was used to rank the constraints responsible for hindering the success of Farmers' Field School. The prime advantage of this technique over simple frequency distribution is that the constraints are arranged based on their importance from the point of view of respondents. Hence, the same number of response on two or more factors may have been given different rank. As per this method, respondents have been asked to assign rank for all the factors and outcome of such ranking have been converted into score value with help of the following Garrett's formula:

Percent position = $100 \times (R_{ij} - 0.5)/N_j$

where,

$R_{ij}$ is the rank given for $i^{th}$ factor by $j^{th}$ respondent;

$N_j$ is the number of factors ranked by $j^{th}$ respondent.

For each factor, the scores of individual respondents are added together and divided by the total number of the respondents for whom scores are added. These mean scores for all the factors were arranged in descending order, ranks were given and most important factors were identified.

Constraints faced by FFS farmers under FFS methodology were institutional as well as technological constraints whereas in case of FFS trainers, the main constraints were institutional; operational; village level and farmer level constraints.

The Data in Table 1 reveal that 'shortage of ICM experts' and 'lack of extension back up' with a mean score 50.03 and 47.35 were the two most important institutional constraints reported by the farmers. Inadequate training (45.58) and lack of qualified trainers (39.40) were the next leading constraints which hindered the effective performance of farmers during FFS.

Inadequate expert support masks the necessary information while tackling of novel practices. FFS experts may help farmers make tactical and strategic management decisions in areas such as cultivar selection, time of planting, harvesting and pest management. Lack of extension backup was another important constraint faced by FFS after their training under FFS. Follow-up is essential activity to stabilize the change occurred during the FFS training. Without this, it is easy for trainees to go back to the old ways. Other institutional level which hindered the effective performance of farmers was 'inadequate FFS training' and 'lack of qualified trainers'. In Andhra Pradesh, FFS is mainly supervised by Assistant Director of Agriculture (ADA), Agriculture Officers (AO) and Agricultural Extension Officers (AEO). Among them, most of the AEOs had a qualification of higher secondary school education. Further, they were not properly trained in ICM concepts and practices.

**Table 1.** Constraints faced by FFS farmers under the FFS methodology (n=240)

| Constraints | Garrett's Score | Rank |
|---|---|---|
| **A. Institutional constraints** | | |
| Shortage of ICM experts | 50.03 | I |
| Inadequate training | 45.58 | III |
| Lack of qualified trainers | 39.40 | IV |
| Lack of extension backup | 47.35 | II |
| **B. Technological constraints** | | |
| Time constraint (consumes more time) | 67.90 | I |
| Shortage of skilled labour | 49.82 | II |
| Non availability of bio-pesticides | 49.13 | IV |
| Complexity of ICM | 49.72 | III |
| Non availability of location specific ICM technologies | 46.92 | V |

Among five technological constraints (Table 1) 'time constraint' (67.90) was the most important, followed by 'shortage of skilled labour' (49.82), 'complexity of ICM' (49.72), 'non availability of bio-pesticides' (49.13) and 'non availability of location specific ICM technology' (46.92). 'Time constraint' and 'shortage of skilled labour' were the main problems farmers ever faced. Agro ecosystem analysis (AESA) and pest monitoring are important components of IPM which consumed a lot of time of the farmers and spread over 14 weeks. The farmers had to monitor the pest every week for a record of 14 weeks. This might have led to lower the motivational level of farmers. Shortage of skilled labour was another important constraint. Unlike conventional extension methodology, ICM is skill based. Skill is required while observing economic threshold level (ETL), applying recommended dose of chemical fertilizers and pesticides, planting bird perches, placing pheromone traps etc. 'Complexity of ICM' was next important constraint that given third rank. Integrated Crop Management Farmers Fields School (ICMFFS) is definitely science based and complex initiative calls for understanding of science of 'ICM' by the trainees. 'Unavailability of bio-pesticides' and 'non availability of location specific ICM technology' were the next important constraints faced by FFS farmers. This shows the need for productions and sale of bio-pesticides at village level by government extension agencies with the help of agricultural university experts.

The data in Table 2 reveal that 'overlapping of departmental schemes or programmes' was the top most institutional constraint which hindered the performance of the trainers. This was followed by other problems such as 'lack of timely supply of inputs' (59.38), 'lack of capacity building' (49.75) , 'lack of coordination between departments' (39.08) and 'inadequate budget' (31.67). In many occasions, trainers need to undertake various developmental activities simultaneously throughout the year. But FFS is a season long programme that requires constant monitoring and evaluation on farmer performance for getting or giving necessary and timely feed-back. This must have resulted in finding adequate and quality time to be devoted for FFSs. Lack of timely supply of critical inputs is another institutional drawback that come in the way of trainer and farmers to organize FFS programme successfully. 'Lack of capacity building' followed by 'lack of coordination between line

**Table 2.** Constraints experienced by FFS trainers under the FFSs methodology (n=60)

| Constraints | Garrett's Score | Rank |
|---|---|---|
| **A. Institutional constraints** | | |
| Overlapping of departmental schemes/ programmes | 70.00 | I |
| Lack of timely supply of inputs | 59.38 | II |
| Inadequate budget | 31.67 | V |
| Lack of coordination between departments | 39.08 | IV |
| Lack of capacity building | 49.75 | III |
| **B. Operational constraints** | | |
| Inconsistency in farmers participation | 39.42 | III |
| Inadequate interaction with farmers | 33.30 | V |
| Work over load | 56.18 | I |
| Lack of timely availability of IPM technology | 37.63 | IV |
| Lack of technical work group | 46.75 | II |
| **C. Village level constraints** | | |
| Fragmented lands | 61.65 | I |
| Lack of transport to reach remote areas | 55.28 | II |
| Political interference | 45.20 | III |
| Poor communication facilities | 37.67 | IV |
| **D. Farmer level constraints** | | |
| Fear of farmers of ICM technology | 69.33 | I |
| Huge subsidy on fertilizers& pesticides | 53.75 | II |
| Less demand on organic farming | 39.58 | IV |
| Poor subsidy on bio-pesticides | 40.42 | III |

departments' and 'inadequate budget' were next premier institutional constraints. In fact, the absence of collaboration among departments with close dialogue and a common vision as well as inadequate funding together with inadequate training affects both the processes and achievements of any intervention sooner or later. Arrangements for supply of critical inputs should have to be done before start of FFS.

The data in Table 2 indicate that FFS trainers have given first rank to 'work over load' followed by 'lack of technical work group' with mean score of 56.18 and 46.75 respectively. 'Inconsistency in farmer's participation', 'lack of timely availability of IPM technology' and 'inadequate interaction with farmers' with a mean score of 39.42, 37.63 and 33.30 respectively were other constraints under this category. Success of FFS depends on the availability of competent and efficient co-working group. Conducting FFS in all the weeks throughout the crop season is not an easy job which needs efficient co-workers and constant encouragement from self and others. Moreover, inconsistency in farmer's participation, lack of timely availability of ICM technology and inadequate interaction with farmers were the next crucial constraints experienced by FFS trainers respectively. In very few cases, it was also observed that some farmers dropped out of the Farmer' Field Schools because they found their expectations were not met or lack of timely availability of technology or because of disputes with other farmers or facilitators.

The most important village level constraint was the 'fragmented lands' with mean score of 61.65 for large scale adoption of ICM practices by farmers. 'Lack of vehicle or transport facility (55.28) to reach remote area was the second most important constraint faced by FFS trainers. Political interference (45.20) and poor communication facilities (37.67) were other village level problems faced by the FFS trainers.

Results further revealed that 'fragmented lands' as one of the considerable constraint at village level. Around 82 per cent of farmers are small and marginal in India having small size of holdings. It is difficult to them to exercise interventions or take risk as their entire livelihood closely connected with it. 'Lack of transport to reach remote areas' was another important constraint that FFS trainers often faces while organizing FFS which might have unable them to organize farmers properly. Late disbursement and inadequate funds for transport, stationary and other administrative requirements sometimes hampered farmer field schools. The poor communication facilities and the 'political interference' were the constraints that often blocked the effective selection of targeted category of farmers which have to be tackled.

The fear of farmers about ICM technology with mean a score of 69.33 was ranked first amongst farmer level constraints as reported by FFS trainers. The huge subsidy on fertilizers and pesticides (53.75), poor subsidy on bio-pesticides (40.42) coupled with less demand on organic farming (39.58) were other barriers which de-motivated FFS farmers to follow FFS concept consistently.

FFS training needs constraints analysis is considered an important to identify the existing gaps in methodology that affects both farmers as well as trainers performance at all levels. The study has revealed a total of four institutional and five technical constraints related to FFS farmer under FFS methodology. The outstanding institutional constraints were related to 'lack of ICM experts' and lack of follow-up. Whereas technical constraints emphasized mainly 'time constraint' and 'shortage of skilled labour'. With respect to trainers, 'overlapping of departmental schemes' and 'lack of timely supply of inputs' were important institutional constraints. Whereas, operational constraints enunciated 'over load of work' as well as 'ineffective co-workers group' as a major constraints. The FFS trainers further expressed that the 'fragmented land' was major constraint at village level for large scale adoption and they also experienced 'political pressure'. Finally FFS trainers were of the opinion that 'huge subsidy on fertilizers' and 'less demand on organic farming' hindered the FFS farmers to be an effective FFS graduate in all time. Thus, it is clear that though FFS has several advantages such as resulting in increased production and productivity with less input, its continued adoption will depend upon effective strategies to remove the constraints.

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