MANAGE

RESEARCH REPORT

Entrepreneurial Behaviour Analysis of DAESI Diploma Holders Trained Under Self-finance Scheme

National Institute of Agricultural Extension Management (MANAGE)

(An Autonomous Organization of Ministry of Agriculture and Farmers Welfare, Govt. of India)

Rajendranagar, Hyderabad - 500 030, Telangana

Entrepreneurial Behaviour Analysis of DAESI Diploma Holders Trained Under Self-finance Scheme

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Citation: Mahantesh Shirur, et al. (2023). Entrepreneurial Behaviour Analysis of DAESI Diploma Holders Trained Under Self-finance Scheme. Hyderabad: National Institute of Agricultural Extension Management (MANAGE).

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ISBN No: **978-81-19663-85-9**

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Disclaimer:

The results of the research report are based on limited sample in the study area. The views expressed by authors in this publication do not necessarily reflect the views of the National Institute of Agricultural Extension Management.

Published for Dr. P. Chandra Shekara, Director General, National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India by Dr. Srinivasacharyulu Attaluri, Deputy Director (Knowledge Management), MANAGE and printed at MANAGE, Hyderabad

MESSAGE

To build the technical competency of agri-input dealers in agriculture and to facilitate them to serve as para extension workers, National Institute of Agricultural Extension Management (MANAGE) launched one year Diploma in Agricultural Extension Services for Input Dealers (DAESI) course in the year 2003. The program has come a long way and so far around 88,000 input dealers have been trained under DAESI scheme o ver the last 20 years. Seeing the significance and impact of this progr am, the Ministry of Agriculture and Farmers' Welfare, Government of India has made this program as a Central Sector Plan Scheme since 2015. The Ministry of Agriculture and Farmers' Welfare, Government of India, will subsidize 50% of the course fee of candidates enrolling for DAESI course. Meanwhile the program was open for non-license holders under self-finance scheme, where anyone with a 10th class and above can join the programme by paying full fees.

Interestingly, a large number of people from different occupations and industries are taking admission to the DAESI program. This provides for an interesting case of willingness of the people to take up agri-input dealership as an entrepreneurial activity. Having decided to trudge this path after paying the 100% course fee, how the DAESI course helped them was also important to be understood. In this connection, the research study conducted by Dr. Mahantesh Shirur and team at MANAGE on “Entrepreneurial Behaviour analysis of DAESI Diploma holders trained under Self-finance scheme” is very timely and useful.

The results of the study are quite encouraging and vindicated the stand of MANAGE to offer this course on self-finance mode also. Majority of the DAESI trained candidates have acquired good knowledge on various aspects of agriculture including the pest and disease management practices, and developed the skills to become para extension worker. As found out by the researchers during the study, the entrepreneurial skills of many candidates enrolled under DAESI is reasonably high and this calls for making use of their services in bridging the extension manpower shortage in the department of agriculture in all the states of India.

The recommendations based on the results and findings of the study are far reaching and are of huge consequences to the Indian agriculture development. I compliment the research team for the pan- India study and wish that the recommendations will be implemented in all earnestness.

(P. Chandra Shekara)
Director General, MANAGE

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EXECUTIVE SUMMARY

In order to impart a basic understanding on agriculture to agri-input dealers not exposed to formal education in agriculture, the National Institute of Agricultural Extension Management (MANAGE), Hyderabad is offering a one-year diploma course titled "Diploma in Agricultural Extension Services for Input Dealers (DAESI)". The DAESI course offers an opportunity to the candidates to engage in agri-input business who hitherto did not have the requisite license to do so. Many candidates even enroll for this course by paying the full course fee. In this background, the current study was designed with the objective to understand the entrepreneurial behavior analysis of DAESI diploma holders trained under Self-Finance scheme and extent of their involvement in agri-input dealership and render their services as para-extension personnel. The study also attempted to identify the constraints faced by candidates trained under self-finance scheme of DAESI.

The research was carried out in 10 states with highest number of candidates enrolled under self-finance scheme of the DAESI program. The data was collected exclusively from the trainees of the self-finance DAESI batches completed between 2018-21 by purposively selecting the candidates not having the license at the time of their enrollment in the DAESI program. Totally 600 candidates were interviewed. The data was collected on personal, socio-economic and business characteristics of the input dealers and their knowledge, capability as para extension professional and the entrepreneurial behavior. Descriptive analysis and stepwise regression were carried out to analyze the results.

Majority of the respondents were male (93.80%), adults aged between 25 to 44 years (71.80%), and well educated. The family characteristics of the respondents shows that more than three-fifth belong to joint family and medium family size. Economic characteristics of the respondents shows that two-fifth (40.76%) of respondents belong to marginal land holding category. Off the participants surveyed, majority (86.66%) had land under cultivation and for about 58.00% of respondents, agriculture was the major occupation with more than one-third (35.80%) having income up to Rs. 1,00,000.

The NTIs at district level I.e. Agriculture Department/ATMA/KVKs plays a major role in the information dissemination and publicity about DAESI program. More than two-

fifth of the respondents (40.83%) had expressed their motivation to join DAESI program as to obtain diploma certificate to transfer input selling license to their name, followed by 36.33% expressing the desire to become a para-extension worker to help farming community through consultancy. About 27.00% of the respondents opined that agri-input dealer shop is profitable in their own area and that motivated to enroll for DAESI course.

The data shows that 68.70% of the respondents have established the shop on their own /undertaken the business from their parents by taking new license. Out of the total respondents, female respondents were vey less (06.20%), but it was interesting to note that 67.57% of them have established the shop and they were almost matching men on this. The percentage of the respondents establishing the shops was lesser among the lower income groups. This suggests that the agri-input business demands and institutional financial support can help the lower income group to take up this agri-business activity.

The data on advisory services offered 52.18% of the agri-input dealers were providing advisory services on pest and disease management practices, followed by seed variety information (51.70%), soil fertility information (47.57%), agro-chemicals information (45.39%), input packaging (18.93%) and credit facilities (08.25%), respectively. More than three-fourth (78.39%) of the respondents surveyed have established the extension corner at their shops for providing agro-advisory services to the farmers. Regarding the facilities provided in the extension corner by the respondents, books on agriculture were kept by majority (79.57%), followed by the list of experts and their contact number, farm magazines, sample of inputs, articles written in books and magazines, paid agri-consultancy services and television/electronic screen.

Lack of financial support from banks and financial institutions was ranked as the biggest constraint among all the constraints by the respondents. The other major constraints were high credit business, capital intensive business and non-supportive government policies etc.

The knowledge on chemical method of pest control among respondents revealed that 89.17% of the respondents could able to recommend at least one chemical to control termites, this number was 82.67% in rats, 82.17% in thrips and 77.50% in ants. The response of knowledge of agri-input dealers on pest management is ranging between 81.17% to 44.67%

in case of agriculture crops and 68.83% to 49.50% in case of horticulture crops. In case of disease management, the numbers were ranging from 92.00% to 49.00% in agriculture crops and 77.50% to 53.00% in horticulture crops.

Majority of the respondents possess skills on guiding the farmers to collect soil samples from farmers field, followed by Ability to recommend micronutrient sprays to farmers (Dosage and timing), diagnosing a pest and disease infestation in a farmers field, Ability to recommend fertilizer dosage to farmers (Important crop/crops) diagnosing the nutrition deficiency of plants, awareness about recommended dose of NPK for major crops in your area, knowledge on irrigation scheduling and to design and layout of vermicomposting structures.

More than one-third each of the respondents had 'medium' (33.67%) to 'high' (35.67%) entrepreneurial behavior. Education, capability as para-extension worker, communication skills, media utilization behavior and innovativeness all together explained as much 42.30 percent of total variation in the respondents' knowledge level. Similarly education, knowledge and seven other attributes of the entrepreneurship of the respondents played an major role in the capabilities of the para extension worker of the respondents.

More than one-third (34.33%) of the respondents perceived fear of failure due to risk in business as major constraint. Lack of support from family members (33.17%), difficulty to keep records (32.00%), lack of interest in business (30.83%) and lack of skills related to input dealing (30.83%) were the other personal constraints perceived by the respondents.

Based on the research study, several recommendations are given which mainly focus on providing capital support to agri-input dealers, ease of procedure for licensing and enrolment in DAESI, special training and government schemes for involving the agri-input dealers as para extension professionals in the district to bridge the extension service personnel gap and also to disseminate information on important government flagship programs that benefit farmers

1. INTRODUCTION

In India, agri-input dealers are one of the prime source of farm information to the farming community. As input dealers are easily accessible, farmers often rely upon them for information on quality and quantity of farm inputs and other farming decisions. Farmers perceive that, majority of the problems encountered by the farmers are dealt by input dealers and they have figured out the right solution over a period of time. However, most of these input dealers, prescribe agro-chemicals and other advisories to the farmers based on their general practice. Since majority of the input dealers do not have formal agricultural education, their suggestions to farmers are likely to come from generalized discussion with their peers and the representatives of the companies rather than the holistic understanding of the problem. In order to impart a basic understanding on agriculture to such input dealers- not exposed to formal education in agriculture, the National Institute of Agricultural Extension Management (MANAGE), Hyderabad is offering a one-year diploma course titled 'Diploma in Agricultural Extension Services for Input Dealers (DAESI).

This DAESI course intends to impart relevant and location-specific agricultural education and transform them into para-extension professionals and enable them to guide farmers to take right decisions on quality, quantity and timing of the input usage. Input dealers in their augmented role as para-extension professionals can bring a paradigm shift in Indian Agriculture by bridging the shortage of manpower in agricultural extension.

The DAESI program is implemented by MOA&FW and MANAGE at National level, SAMETIs at State level and Nodal Training Institutes/ATMA at district level. The DAESI diploma is being offered as a Central Sector Plan Scheme (CSPS) and Self-Finance (SF) scheme. Under the CSPS, the input dealer having a license to sell inputs is eligible to enroll and get subsidy in the course fee from the Ministry of Agriculture and Farmers' Welfare (MoA&FW), Government of India. Under the Self-Finance (SF) scheme, the candidates having no license to sell agri-inputs will enroll by paying the full fee of the course. After completing the diploma, they become eligible to apply for agri-input business.

Therefore, the DAESI course offers an opportunity to the candidates to engage in agri-input business who hitherto did not have the requisite license to do so. This also indicates the willingness of such candidates to trudge into an unfamiliar territory of agri-input business and they see it either as source of their livelihood or as an entrepreneurial

venture. Hence, serves as an interesting research problem to understand the entrepreneurial behaviour analysis of DAESI diploma holders trained under Self-Finance scheme and the extent of their involvement in agri-input dealership and render their service as Para-extension personnel. In this background, the current study was designed with the following objectives:

Objectives

1. To study the personal and socio-economic profile of non-licensee dealers trained under Self-Finance scheme of DAESI
2. To study the knowledge level and capabilities as para extension professionals of non-licensee dealers after completing DAESI diploma
3. To assess the entrepreneurial behavior of non-licensee dealers trained under self-finance scheme of DAESI diploma
4. To identify the constraints faced by candidates not possessing agri-input license but trained under Self-Finance scheme of DAESI

Lay out of the report

The report is organized into four chapters. The introductory chapter gives a brief about the DAESI course, its implementation and its significance in enabling the agri-input dealers to become para extension professionals in India. The chapter also gives a brief account of problem statement and objectives of the research. The second chapter 'Methodology' gives details about the locale of the study, sampling procedure followed and research methods and statistical tools applied in conducting the research. The third chapter 'Results and Discussion' focuses on major findings and related discussion. The chapter four 'Recommendations' provides the list of policy recommendations and actionable points as way forward in strengthening the implementation of the DAESI program to achieve the intended objectives of the scheme. The annexures follows after the chapters.

2. RESEARCH METHODOLOGY

Research area and sampling

DAESI Program is implemented in 20 states out of 28 states in India. Out of 20 states, the research was carried out in 10 states with highest number of candidates enrolled under self-finance scheme of the DAESI program. The data was collected exclusively from the trainees of the self-finance DAESI batches completed during 2018-21 by purposively selecting the candidates not having agri-input license at the time of their enrolment in the DAESI program. Number of respondents selected state wise is depicted in Table 2.1.

Table 2.1 : State wise distribution of respondents n=600

No	State	Number
1.	Bihar	58
2.	Chhattisgarh	54
3.	Jharkhand	14
4.	Karnataka	140
5.	Madhya Pradesh	60
6.	Maharashtra	38
7.	Punjab	33
8.	Rajasthan	33
9.	Uttar Pradesh	60
10.	West Bengal	110
Total		**600**

Method of data collection

Out of all the candidates trained during 2018-21 under self-finance mode and candidates willing to participate as a respondent in the study were personally interviewed. The data collection was continued till the required sample of 600 respondents reached. The data collection was done between August-December, 2022 in all the 10 states.

Variables and their measurements:

Personal and socio-economic variables

The data on personal and socio-economic characteristics having direct/indirect bearing on agri-input business were collected through a structured interview schedule. The important personal and socio economic variables analyzed are listed below.

- Gender
- Age
- Education
- Family Type
- Family Size
- Landholding
- Major source of Irrigation
- Major Occupation
- Annual Income
- Number of years of doing agri-input business
- Location of business
- Type of ownership
- Distance of shop from other nearest dealers shop
- Social media and ICT application behavior of Agri-input dealers
- Point of contact of Agri-Input Dealers for seeking information on different topics
- Knowledge of Agri-Input Dealers on use of Pesticides
- Knowledge of Agri-Input Dealers on Pest and Disease management of important crops

The data was also collected on psychological traits of candidates, knowledge and their perception on different aspects associated with agri-input dealership. The key psychological aspects on data collection include source of information about DAESI program and motivation to join the DAESI program.

Dependent variables

The data was obtained from respondents on three dependent variables viz., knowledge, Entrepreneurial behaviour and Capability as Para extension worker.

➢ Knowledge level	Teacher made test
➢ Entrepreneurial Behaviour	Scale developed by Shirur (2015) with suitable modifications
➢ Capability as Para extension worker	Structured schedule developed

Knowledge

The knowledge level of the respondents was calculated based on the score obtained on a teacher made test with 16 questions having dichotomous responses (yes/no), followed by a random question for validating the right response. Each correct response was assigned with score of 1 and wrong response or no answer was assigned with score of 0. The maximum score one could get was 16.

Knowledge of agri-input dealers on use of pesticides

An open ended question was asked to respondents to ascertain their knowledge on control of pests affecting the farmers either in his farming or in allied activities. Accordingly 10 important pests were selected. The knowledge assessment of the respondents on pest control was limited to chemical control only. The respondents were asked to recall at least one chemical used for their control and right answer was given a mark of 1 and wrong answer was given a mark of 0.

Knowledge of agri-input dealers on pest and disease management of important crops

The respondents were asked to identify at least one important crop pest and disease and suggest at least one chemical control method to control the same. Accordingly nine (09) major agriculture crops and five horticultural crops (05) grown in all the states were selected. The right answer was given a mark of 1 and wrong answer was assigned a mark of 0.

Capability as para extension worker

To assess the capability of DAESI trained input dealer as para extension worker, a structured schedule consisting of 12 statements was prepared. The schedule was administered to the respondents on a five point rating scale ranging from 1 to 5. The rating of 5 indicates the highest capability and 1 indicates lowest capability. The maximum possible score was 60 and minimum was 12. Thereafter, the average score of each statement was calculated.

Entrepreneurial behaviour

Entrepreneurial Behaviour was measured with the help of Scale developed by Shirur (2015) with suitable modifications. The entrepreneurial behaviour consisting of nine (09) attributes each having 5-7 statements was measured with a five point continuum of responses such as strongly agree, agree, undecided, disagree and strongly disagree with score of 5, 4, 3, 2 and 1, respectively.

Ranking of the selected indicators

In order to obtain the rank of the selected attributes of the scale items, 50 judges were requested to rank the selected attributes according to their relative importance for measuring the Entrepreneurial Behaviour. After receiving the responses of the judges, the

data was transformed and tabulated to a master table based on the judges ranking. The ri column represents the ranks, followed by Ri, which were reversed (see table). Each component's ranking frequency was tabulated accordingly.

Entrepreneurial Behaviour Index (EBI)

Entrepreneurial Behaviour Index for each respondent was determined by using the formula:

$$EBI = [(R1/M1) \times S1 /S + (R2/M2) \times S2 /S + \ldots + (Rn/Mn) \times Sn /S] \text{ X } 100$$

Where,

EBI	=	Entrepreneurial Behaviour Index of the respondent
R1, R2 …. Rn	=	Entrepreneurial behaviour score obtained by the respondent for the particular attribute of entrepreneurial behaviour
M1, M2 …. Mn	=	Potential score of the respondent for particular attribute of entrepreneurial behaviour
S1, S2, …Sn	=	Scale value of the particular attribute of Entrepreneurial Behaviour i
S	=	total scale value of all the attributes

Respondents were classified into five groups based on the lowest and highest possible score:

Sl. No.	Category	Score
1.	Very low	(43.88-55.10)
2.	Low	(55.11-66.32)
3.	Medium	(66.32-77.53)
4.	High	(77.56-88.77)
5.	Very high	(> 88.77)

Constraints faced by the respondents

The constraints of the respondents were listed as personal constraints, marketing constraints, situational constraints, economic constraints and extension constraints. The candidates were asked to mark each constraint in either yes/no. All the yes response indicates it as a constraint and no indicates not a constraint to the respondents. The yes was assigned a score of 1 and no was assigned a score of 0.

Analysis of the data: The data was tabulated, classified and analyzed as per the objective of the study. Statistical tools such as Frequency, Percentage, Mean, and Step-wise regression were applied to draw meaningful inferences of the results.

Step-wise regression analysis

The step-wise regression (multiple regressions) analysis was employed to predict the extent of effect of independent variables. In the stepwise regression method, the regression analysis was started with regression of y and xi…xk taken singly. The variate giving the highest accountability in sum of squares of y is first selected. The bivariate regression in which xi appeared were worked out. The variable which gives the highest additional accountability in sum of squares in y after fitting xi variable was selected. All the trivariate regression that includes both x1 and x2 were computed. The analysis was continued till the last variate of which additional contribution was the least of all variables.

The prediction equation used as:

$$y = a + b1x1 + b2x2 + b3x3 + \ldots \ldots \ldots + bkxk$$

Where,

y = Dependent variable

a = Intercept

b1…bk = Partial regression co-efficient of respective independent variables.

x1… … …xk = Independent variable

After the regression equation, the 'F' values for partial regression co-efficient were tested for their significance.

3. RESULTS AND DISCUSSION

The results of the study are analysed and discussed under the following major heads.

1. Profile characteristics of the respondents
2. Motivation to join in DAESI program
3. Establishment of business
4. Business characteristics
5. Extension corner
6. Reasons for not establishing agri-input enterprise
7. Point of contact of agri-input dealers for seeking information
8. Knowledge
9. Capability as para extension worker
10. Entrepreneurial behaviour of respondents
11. Step wise regression analysis
12. Constraints faced by the respondents

Profile characteristics of the respondents

The personal characteristics of the respondents presented in Table 3.1 reveals that majority of the respondents were male (93.8%), adults aged between 25 to 44 years (71.8%), and well educated (with 39.3% of them having graduation or above). The family characteristics of the respondents shows that more than three-fifth (62.3%) belong to joint family and medium family size (48.70%).

Economic characteristics of the respondents shows that two-fifth (40.76%) of respondents belongs to marginal land holding category. Off the participants surveyed, majority (86.66%) had land under cultivation and for about 58.00% of respondents, agriculture was the major occupation with more than one-third (35.8%) having income up to Rs. 100,000. The respondents practising agriculture have reported that canal was their major source of irrigation (37.76%).

Gender

Agri-input business is often considered as the male dominated business as they have to spend long hours at the shop and demands more of physical activity. Hence, it was of interest to know as what motivated the female candidates to enrol for DAESI program and other factors responsible for establishment of business.

Table 3.1: Profile characteristics of the respondents **n=600**

I.	**Gender:**		
No	**Characteristic**	**Number**	**Percentage**
1.	Male	563	93.8
2.	Female	37	6.2
II.	**Age :**		
1.	Youth (18 to 24 Years)	53	8.8
2.	Adult (25 to 44 Years)	431	71.8
3.	Middle Aged (45 to 64 Years)	115	19.2
4.	Old Age (Above 64 Years)	1	.2
III.	**Education**		
1.	SSC	116	19.3
2.	12th	205	34.2
3.	Graduate	236	39.3
4.	Postgraduate and above	43	7.2
IV.	**Type of Family**		
1.	Nuclear	226	37.7
2.	Joint	374	62.3
V.	**Family Size**		
1.	Small Size (Up to 4 Members)	226	37.70
2.	Medium Size (5 to 7 Members)	292	48.70
3.	Large Size (Above 7 Members)	82	13.70
VI.	**Major Occupation**		
1.	Agriculture	348	58.00
2.	Business/Agri-Input Business	228	38.00
3.	Private Employee	24	4.0
VII.	**Annual Income**		
1.	Up to 1,00,000	215	35.8
2.	1,00,001 to 2,00,000	166	27.7
3.	2,00,001 to 3,00,000	92	15.3
4.	3,00,001 to 4,00,000	34	5.7
5.	4,00,001 to 5,00,000	53	8.8
6.	Above 5,00,000	40	6.7
VIII.	**Size of Land Holding**		**n=520**
1.	Marginal (Upto 1 ha)	212	40.76
2.	Small (1.01 to 2.0ha)	165	31.73
3.	Medium (2.01 to 4.0 ha)	92	17.69
4.	Large (Above 4 ha)	51	9.80
IX.	**Major Source of Irrigation**		**n=437**
1.	Bore Well	136	42.56
2.	Canal	173	39.53
3.	Farm Pond	52	11.90
4.	Well	26	5.95

Even though the enrolment of female candidates is very less (6.20%), it is interesting and encouraging to know that female candidates are showing interest to establish agri-input business on their own. One important reason could be agri-input business bequeathed by their parents.

Age

The data shows that majority (80.6%) of the respondents were adult and young with age between 18 to 44 years. From the data it can be inferred that a large number of youth are attracted towards the DAESI course for establishment of an agri-input dealer shop. Youth and adult entrepreneurship is not only a means of overcoming unemployment; it can also provide broader benefits, such as improving young people's social and psychological well-being and providing them with enterprising competencies.

Education

From the table it can be known that more than three-fourth (80.70%) of the respondents had formal education of above 12^{th} standard with about 46.5% of respondents having a graduate or post-graduate degree. The result also indicates that educated and unemployed youth are attracted towards the DAESI course for establishment of an agri-enterprise. Education serves as a motivator for everyone to pursue an entrepreneurial career. It is also necessary to understand how to identify business opportunities, use available resources, and make sound decisions. As a result, the connection between education and entrepreneurship is extensive and significant.

Family type and family size

Family type and family size in the context of present study helps the researcher to know about the support system existing in the family. The data presented in the table shows that more than three-fifth (62.30%) of the respondents belong to joint family category with more than 5 members in the family. Joint family helps an individual member to share the views and learn new knowledge, skill and experiences from the old aged members of the family.

Family offers the entrepreneur a wide range of resources that may have an effect on both the family firm and the individual entrepreneur. According to entrepreneurship research, self-employed family members share their resources with other family members,

such as expertise, capital, and access to markets, suppliers, or specific technology. Moreover, family members are a significant source of manpower and can be used for either paid or unpaid work. Joint Family plays a major role in supporting the respondent in establishment and running the business by providing physical, moral and financial support.

Land holding

Land holding is an important attribute for establishing an agri-enterprise. They can generally increase net income and ensure income stability. The data reveals that close to three-fourth (72.39%) of the respondents belong to small and marginal category of land holding.

Major occupation

The occupation gives status of economic condition of the respondents. The table shows that nearly two-third (65.80%) of the respondents were engaged in the agriculture followed by agri-business dealership..

Annual income

The data on annual income gives an idea about the economic condition of person to go for occupation preferred, and hence the annual income of the respondents plays a major role in establishment of shops. The data reveals that more than one-third (35.80%) of the respondents were having annual income up to Rs. 100,000, followed by 27.70% having annual income in the range of Rs. 100,000 to Rs. 200,000. Just about 6.7% of were having annual income of Rs. 500,000.

Source of information about DAESI program

Information and awareness about diploma course plays a major role in the enrolment of DAESI Program. The NTIs at district level i,e. Agriculture Department/ATMA/KVKs plays a major role in the information dissemination and publicity about DAESI program. The data on source of information about DAESI program reveals that Agricultural Department is the major source of information (66.66%) about DAESI program, followed by fellow input dealers/ friends (29.83%). WhatsApp (22.66%) and Newspaper (17.33%) were the other important means to access the information on DAESI by candidates. Agricultural Department/ATMA being the nodal agency at district level for the enrolment of DAESI program, its position as primary source of information about DAESI program is understandable position.

Table 3.2: Source of information about DAESI program n=600

No	Source of Information	Number	Percent
1.	Agriculture department/ATMA	400	66.66
2.	Other input dealers	179	29.83
3.	Whatsapp	136	22.66
4.	Newspaper	104	17.33
5.	Television	22	3.66
6.	Radio	9	1.5
7.	Leaflets/pamphlets	4	0.6
8.	Magazines	3	0.5
9.	E mail	3	0.5
10.	Facebook	3	0.5
Total		**600**	**100.00**

Motivation to join in DAESI program

Motivation is an intrinsic factor that drives a person to succeed in their profession. Enrolment in the DAESI course is certainly influenced by an individual's inner desire to start a business or gain knowledge. Moreover, as the DAESI diploma is an optional course it is important to know the factor influencing the candidates for enrolment in the DAESI course.

Table 3.3: Primary motivation to join in DAESI Program n=600

No	Motivation to Join in DAESI Program	Number	Percent
1.	To obtain diploma certificate to transfer license to my name	245	40.83
2.	To become a para-extension worker to help farming community through consultancy	218	36.33
3.	Agri-input dealer shop in your own area is very profitable	162	27.00
4.	Your own family requirement of inputs is very high	30	5.00
5.	Other	38	6.33

More than two-fifth of the respondents (40.83%) had expressed their motivation to join DAESI program as to obtain diploma certificate to transfer input selling license to their name, followed by 36.33% expressing the desire to become a para-extension worker to help farming community through consultancy. About 27.00 % of the respondents opined that agri-input dealer shop is profitable in their own area and that motivated them to enrol for DAESI course.

Establishment of Business

The data regarding establishment of shop after availing the DAESI diploma certificate is presented in Table 3.4. The data shows that 68.7% of the respondents have established the shop on their own/ undertaken the business from their parents by taking new license.

Table 3.4: Distribution of trained input dealers establishing shop n=600

No	Establishment of Shop	Number	Percent
1.	Established	412	68.7
2.	Not Established	188	31.3
Total		**600**	**100.00**

Out of the total respondents, female respondents were very less (06.20%), but it was interesting to note that 67.57% of them have established the shop and they are almost matching men on this. In case of education, majority of respondents with education above 12th standard have established the shops. The percentage of the respondents having established shops among joint and nuclear family is almost equal.

Among the respondents having business/agri-input business as their primary occupation, majority (84.21%) had established their own shops after completion of the DAESI course. Among the income group categories, majority (82.50%) of the respondents with higher income (> Rs. 500,000) have established their shops. Interestingly, the percentage of respondents establishing the shops was lesser among the lower income groups. This suggests that the agri-input business demands capital and institutional financial support can help the lower income group to take up this agri-business activity.

Table 3.5: Distribution of respondents establishing their shops among categories of their personal characteristics.

No	Characteristic	Total Number	Number of persons established shop	Percentage
I. Gender:				
1.	Male	563	387	68.74
2.	Female	37	25	67.57
II. Age :				
3.	Youth (18 to 24 Years)	53	31	58.49
4.	Adult (25 to 44 Years)	431	291	67.52
5.	Middle Aged (45 to 64 Years)	115	89	77.39
6.	Old Age (Above 64 Years)	1	1	100.00
III. Education				
7.	SSC	116	88	75.86
8.	12th	205	129	62.93
9.	Graduate	236	167	70.76
10.	Postgraduate and above	43	28	65.12
IV. Type of Family				
11.	Nuclear	226	156	69.03
12.	Joint	374	256	68.45
VI. Major Occupation				
13.	Agriculture	348	205	58.91
14.	Business/Agri-Input Business	228	192	84.21
15.	Private Employee	24	15	62.50
VII. Annual Income				
16.	Up to Rs.100,000	215	134	62.33
17.	Rs.100,001 to 200,000	166	113	68.07
18.	Rs.200,001 to 300,000	92	65	70.65
19.	Rs.300,001 to 400,000	34	25	73.53
20.	Rs.400,001 to 500,000	53	42	79.25
21.	Above Rs.500,000	40	33	82.50

Business characteristics

The data on business nature of the agri-input dealers is presented in Table 3.6. The results on seven different characteristics, age of business, location of business, ownership of business, distance from other shop, mode of internet access and management of business

Age of business

It is presumed that the performance of the business increase with increase in the duration of the active business due to accumulated learning experiences. A business of more than 2 years generally indicates the stability of the business. More than one-third (38.11%) of the respondents were doing business from last 2-5 years, followed by 35.68%

of the respondents running the business since one year and 26.21% of the respondents were doing business from the last 1-2 years.

Location of business

Accessibility to farmers is very important in agri-input business. Hence, it is essential to setup the shop strategically. More than two-third (69.42%) of the respondents

Table 3.6: Business characteristics **n=412**

No	Characteristic	Number	Percent
Distribution of input dealers according to age of agri-input business			
1.	< 1	147	35.68
2.	1-2	108	26.21
3.	2-5	157	38.11
Current location of agri-input shop of respondents			
1.	Village	286	69.42
2.	Town	102	24.76
3.	District	24	5.83
Type of ownership			
1.	Single Proprietorship	386	93.68
2.	Partnership	26	6.31
Distance from other shop			
1.	< 1 km	250	60.68
2.	1-5 km	114	27.67
3.	5-10 km	29	7.04
4.	> 10 km	19	4.61
Mode of Internet access by input dealers in shops			
1.	Mobile Data	345	83.74
2.	Broadband with wifi router	44	10.68
3.	Optical Fibre with Wifi router	23	5.58
Perception of respondents on agri-input business on financial angle			
1.	Very Challenging	204	49.51
2.	Comfortable	149	36.17
3.	Profitable	57	13.83
4.	Highly Profitable	2	0.49
Perception of respondents on agri-input business on Management angle			
1.	Comfortable	249	60.44
2.	Very Stressful	126	30.58
3.	Highly Enjoyable	37	8.98

have established their shops at village, followed by 24.76% in towns and only 5.83% at the district headquarters. As agriculture is main occupation and most of the agricultural lands are situated in villages, majority of the DAESI trained agri-input dealers are choosing village in recent times as their location for establishment of shops appears logical. It also

indicates a shift in the trend of concentration of shops to villages from urban areas. This is expected to help the farmers to save time and transaction cost in transportation of inputs and helps the agri-entrepreneurship to penetrate into rural areas.

Ownership of business

Majority (93.68%) of the respondents were having single-proprietorship, followed by 6.31% of the respondents had partnership in their business. Majority of the respondents have chosen sole proprietorship as decision making lies only with the owner.

Distance from other shop

Distance between two agri-input shops has implications on business competition and number of clients served. The data (Table 3.6) reveals that three-fifth (60.68%) of the established shops were located within a radius of one km from other shops, followed by 27.67% of the respondents shops were located within a radius of 2-5 kms from other shops. The result indicates the input shops are in a cluster and suggests intense competition for business. This could also be due to the setting up of shops in a designated market place, where farmers congregate.

Internet access

Internet access is very important for day to day business activities of input dealers. The data on mode of internet access by the respondents reveals that majority (83.74%) of the respondents were using mobile data as source of internet, followed by broadband (10.68%) and optical fibre (5.58%). Internet is also essential for serving as an affective para extension professional.

Management of business

Nearly half of the respondents (49.51%) perceived that agri-input business was very challenging as per financial terms and three-fifth (60.44%) of the respondent's perceived business was comfortable as per management terms.

Distribution of agri enterprises catering to different needs

Agri-input business is concerned with dealing of agriculture and allied sectors. In order to run a business successfully the entrepreneur must cater to the diverse needs of farmers. Diverse products will help him to gain competitive advantage and serves as a

safety against the risk of loss. The data on respondents catering to needs of different sectors of farmers is presented in Table 3.7.

Table 3.7: Distribution of Agri Enterprises catering to different needs n=412

No	Agri-Enterprises	Number	Percent
1.	Agriculture	381	92.48
2.	Horticulture	119	28.88
3.	Animal husbandry	39	9.47
4.	Fisheries	7	1.70
5.	Poultry	3	0.73

Majority (92.48%) of the respondents were catering to the needs of agriculture sector, followed by horticulture (28.88%), Animal Husbandry (9.47%), Fisheries (1.70%) and Poultry (0.73%). The result indicates that major area under cultivation in these areas is agriculture and horticulture crops and the demand for inputs of animal husbandry, fisheries and poultry is less compared to agriculture and horticulture.

Agri-inputs sold by respondents

The results on agri-inputs sold by the respondents is presented in the Table 3.8. Off the respondents established agri-input shops, almost all (99.03%) sold fertilizers, while about 87.62% sold agro-chemicals and 64.56% sold seeds. The input dealers selling the bio fertilizers in their shops is also decent (27.18%). It is also interesting to know that 19.66% were involved in selling of agri tools and implements even as selling agri machinery by itself is an emerging and specialised agri-business activity.

Table 3.8: Agri-inputs sold by respondents who established shops n=412

No	Products sold	Number	Percent
1.	Fertilizers	408	99.03
2.	Pesticides/herbicides/fungicides	361	87.62
3.	Seeds	266	64.56
4.	Agricultural tools implements	81	19.66
5.	Bio fertilizers	112	27.18

Advisory services offered

Advisory services are required by the farmers continuously for solving their day to day problems in agriculture and allied sectors. As agri-input dealers are prime contact point to the farming community, the advisory services offered by the agri-input dealers plays a major role in the success of avocation of the farmers.

The data on advisory services offered (Table 3.9) reveals that 52.18% of the agri-input dealers were providing advisory services on pest and disease management practices, followed by seed variety information (51.70%), soil fertility information (47.57%), agro-chemicals information (45.39%), input packaging (18.93%) and credit facilities (8.25%), respectively.

Table 3.9: Advisory services offered by agri-input dealers n=412

No	Services offered	Number	Percent
1.	Pest and disease management	215	52.18
2.	Seed variety information	213	51.7
3.	Soil fertility information	196	47.57
4.	Agro chemicals information	187	45.39
5.	Input packaging	78	18.93
6.	Credit facilities	34	8.25

Sale of safety equipment in shop

Safety equipment in agriculture minimise risks and protect themselves from potential health hazards of farmer and agri labour. Sale of safety equipment in shop also suggests the agri-input dealers' awareness on health and responsibility of educating farmers about use of safety equipment during spraying of pesticides. Less than half (47.33%) of the respondents were selling spraying machines, followed by face mask (45.15%), hand sanitizer (39.56%) and a very less percent of respondents (7.28%) are selling PPE kits.

Table 3.10: Sale of safety equipment in shop n=412

No	Sale in Shop	Number	Percent
1.	Spraying machine	195	47.33
2.	Facemask	186	45.15
3.	Hand sanitizer	163	39.56
4.	PPE Kit	30	7.28

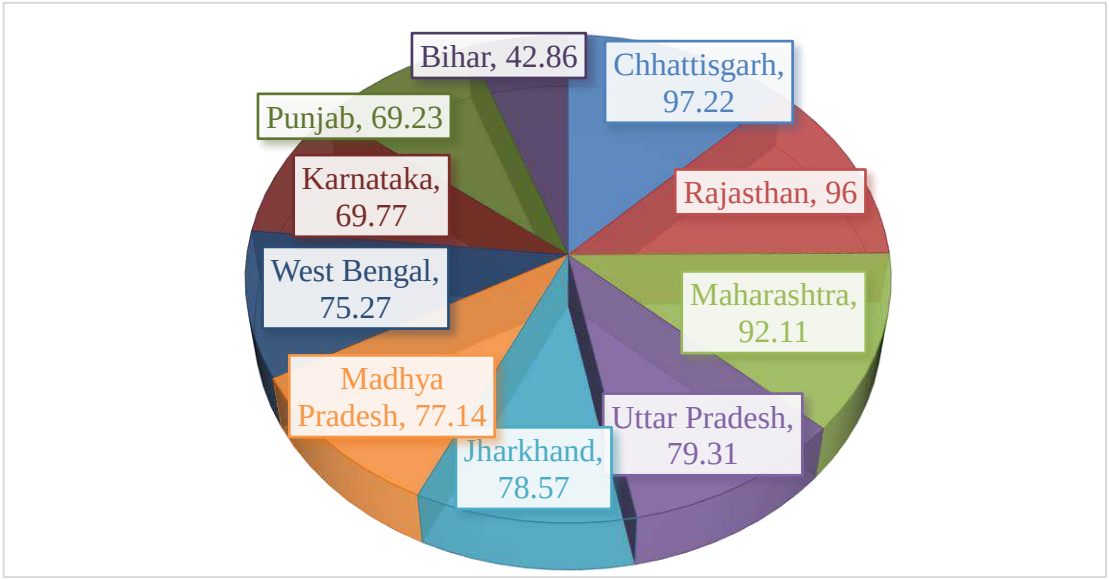
The data on sale of safety equipment presented in Table 3.10 suggests the need for increasing awareness about the use of safety equipment's among all the stakeholders involved in agriculture and allied activities.

Extension corner

Extension corner is a concept mooted and promoted under DAESI to educate farmers on various issues during their visit to agri-input shops. More than three-fourth (78.39%) of the respondents surveyed have established the extension corner at their shops for providing agro-advisory services to the farmers (the extent of resources and nature of extension corner vary from shop to shop).

The state wise distribution of input dealers establishing extension corners is presented in Figure 1. Chhattisgarh (97.22%), Rajasthan (96.00%) and Maharashtra (92.11%) have fared well in establishing extension corners compared to other states.

Figure 1: Sate wise distribution of extension corners established n=323



Facilities created by agri-input dealers in their shops

As most of the farmers were small and marginal and it was difficult for them to subscribe books, magazines related to agriculture and to get information on various new technologies developed by the universities and institutes. In such case extension corners in agri-input shops will help the farmers. DAESI being a comprehensive course curriculum with 80 sessions and 8 filed visits, the respondents will, come across different resource persons from different institutes of various specialized subjects and in the field visits the respondents will come across different new technologies developed by the institutes. The objective of the DAESI program is to transform the agri-input dealers into para extension

workers, establishment of extension corners at their shops will serve one of the objectives of DAESI program. Knowing the services rendered by the respondents in extension corner is very important.

Regarding the facilities provided in the extension corner by the respondents (see table 3.11) books on agriculture were kept by majority (79.57%), followed by the list of experts and their contact number, newspapers, list of institutes and their contact number, farm magazines, samples of inputs, articles written in books and magazines, paid agri-consultancy services and television/electronic screen.

Table 3.11: Facilities created by agri-input dealers in their shops n=323

No	Particulars	`Yes	
		F	%
1.	Books on agriculture	257	79.57
2.	List of experts and their contact number (ATMA/KVK/SDA and allied departments)	244	75.54
3.	Newspapers	234	72.45
4.	List of institutes and their contact number (ATMA/KVK/SDA and allied departments)	231	71.52
5.	Farm magazines	227	70.28
6.	Samples of inputs	212	65.63
7.	Articles written in books and magazines	187	57.89
8.	Paid agri-consultancy services	157	48.61
9.	Television/Electronic screen	138	42.72

The facilities created in extension corner are mostly driven by the cost factors and convenience. Close to half of the respondents are giving the paid agri-consultancy which suggests that there is a increasing demand for paid extension service in India. This could be facilitated by the commercial agriculture and export market for many commodities.

Utilization of Social Media

Social media is the pervading new means of communication used by majority to exchange information, views and ideas. It also helps the agri-input dealers to improve their business through social networking. Social media usage by the respondents helps in updating about new advances in agriculture, innovations in agriculture and helps in building strong customer relationships. Utilization of ICT tools and gadgets will help the respondents to ease their work by saving the time and risk of errors.

The data presented in Table 3.12 reveals that 82.67% of the respondents were a part of agri-input dealers group, followed by agri-consultants group (67.17%) and 57.50% of them have created WhatsApp group for farmers to share the information.

Table 3.12: Social media and ICT application behaviour of Agri-input dealers for their business n=600

Sl. No.	Question	Yes	
		F	%
1.	Are you part of input dealers WhatsApp group?	496	82.67
2.	Are you part of agri-consultants WhatsApp group?	403	67.17
3.	Have you created a WhatsApp group for your farmers?	345	57.50
4.	Is your input stock computerized?	262	43.67
5.	Is cash receipts computerized in your shop?	259	43.17

Constraints faced by the respondents for not establishing agri-input enterprise

Establishment of new enterprises leads to new jobs and opportunities. All the trained input dealers may not be able to establish their own shops due to various constraints. There are many external factors that doesn't favour the individual to venture into agri-input business. Hence, it is pertinent to find out the reasons for not establishing shops. Out of the total respondents surveyed, 68.70% of the respondents have established their own shop/ have taken over the business from their parents by getting a new license. Nearly one-third of the respondents could not establish the agri-input business. The constraints in establishment of business by such respondents are tabulated and presented in Table 3.13.

Lack of financial support from banks and financial institutions was ranked as the biggest constraint among all the constraints by the respondents. The other major constraints were high credit business, capital intensive business and non-supportive government policies etc.

As majority of the respondents were small and marginal farmers (with annual income less than Rs. 100,000) it was difficult for them to get lending support from the banks. Agriculture department/ATMA through Common Service Centres may educate the input dealers about linking to agri-infrastructure fund and various other schemes for establishment of shops. The department should take a proactive role in guiding the input

dealers for establishment of consultancy services to the farmers and to serve as para extension worker.

Table 3.13: Reasons for not establishing agri-input enterprise by respondents trained under DAESI n=188

No	Reason	F	%	Rank
1.	Lack of financial support from banks and financial institutions	137	72.87	I
2.	High credit business	121	64.36	II
3.	Business is capital intensive	107	56.91	III
4.	Non-supportive government policies	93	49.47	IV
5.	Inability to proper market planning	88	46.81	V
6.	Fear of competition	87	46.28	VI
7.	Inaccurate evaluation of project (DPR)	79	42.02	VII
8.	Bottlenecks in obtaining license from the department to start the business	76	40.43	VIII
9.	Complex legal issues	75	39.89	IX
10.	Problems of partnership and team work	72	38.3	X
11.	Lack of professional advice to run the enterprise	70	37.23	XI
12.	Lack of related experience, expertise and good work relationships	64	34.04	XII
13.	Problems in product or service supply	51	27.13	XIII
14.	Inadequate training under DAESI	51	27.13	XIV
15.	Non-Supportive attitude by the family members	49	26.06	XV
16.	Lack of interest and dissatisfaction in work or work place	47	25.00	XVI

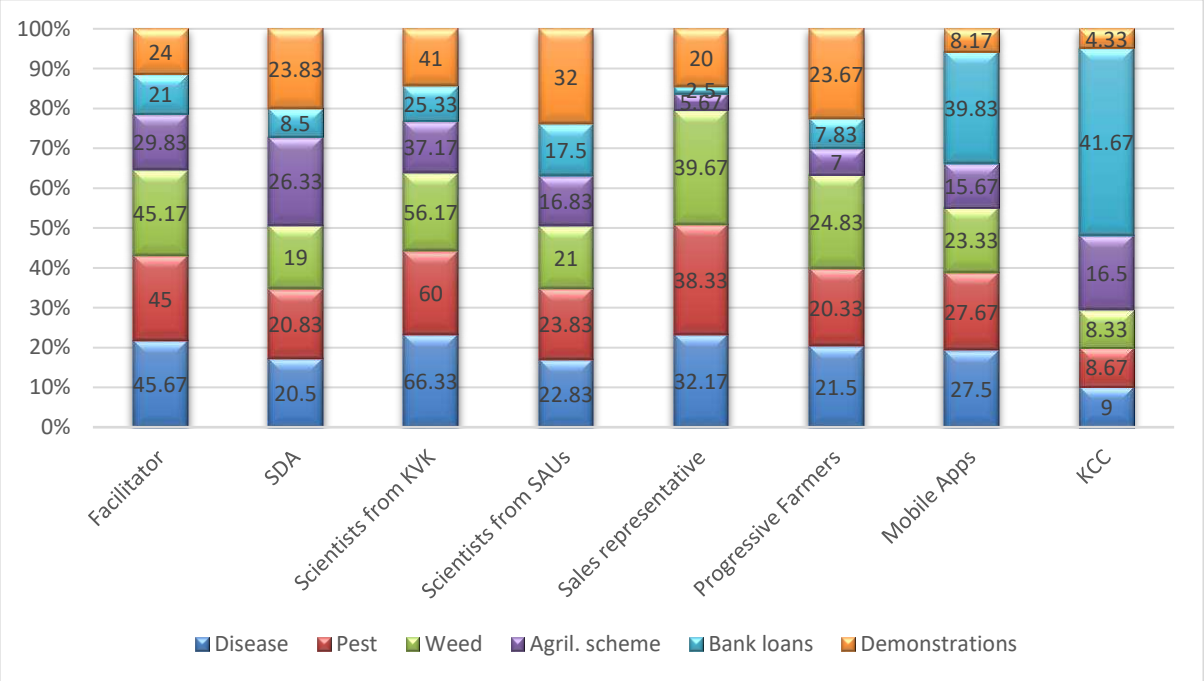
As much of the agri-input business is credit oriented and capital intensive, the respondents should think of low cost ideas such as consultancy services, collaborating with departments etc. The department officials must utilize the services of the trained input dealers to serve the farming community by giving them preference. As the agri input business deals with agro chemicals, their business is governed by several legal issues. Importantly this was also listed as a major constraint which can be effectively addressed by state department of agriculture through training and capacity development programs for agri-input dealers trained under DAESI scheme.

Information seeking behaviour

DAESI having a comprehensive curriculum with 80 theory sessions and 8 field visits provides an opportunity for the respondents to acquaint with the facilitator, resource persons from different institutes related to agriculture and private employees in the field.

Agri-input dealers are the prime contact of information to the farming community for a new problem/ for any information on new technologies. It is obvious that the input dealer may not be aware of all the latest development or he may not able to provide solution to the farmer. It is important to know source from whom the input dealer will seek information on various topics. The results on important point of contact for agri-input dealers is presented in Table 17.

Figure 2: Point of contact of agri-input dealers for seeking information on different topics **n=600**



The results on point of contact of agri-input dealers for seeking information on different topics presented in figure 2. Regarding the information related to disease, pest, weeds and agricultural schemes, scientists from the KVK were the first source of information for agri-input dealer. The next important experts in the list are facilitators and sales representative. Information on bank loans was sought by input dealers from Kisan Call Centre, followed by mobile apps and scientist from KVK. Information related to demonstrations was sought from scientists from KVK, SAUs and SDA.

From the results, it can be inferred that for majority of the respondents, scientists from KVKs, SAUs and facilitators were source of information on various topics. The most likely reason for this is due to the majority of the DAESI classes handled by the KVK scientists and facilitators. They were also in close contact with the respondents throughout the course for a duration of one complete year.

Knowledge

To become an effective para extension worker and to be a good agri-entrepreneur, comprehensive and accurate knowledge of the subject is very essential. Majority of the agri-input dealers in the country are not exposed to scientific and technical knowledge on various crop cultivation aspects. Lack of knowledge will lead to faulty recommendations affecting the crop and in turn affect the livelihood of the farmer. The DAESI program was conceived with an objective to impart necessary skills and knowledge for an individual to diagnose the problem correctly and to recommend appropriate solution to the farmer.

Table 3.14: Knowledge level of the respondents **n=600**

No	Question	F	%
1.	Are you aware about Rabi/Kharif/Summer seasons? (……/……/…….in vernacular language	568	94.67
2.	Are you aware of total number of essential nutrients required for plant growth?	558	93.00
3.	Are you aware of how to maintain stock of inputs in the shop?	513	85.50
4.	Do you know the crop duration of important crop varieties in ……? (major crop of district)	507	84.50
5.	Do you know the essential nutrients required for plant growth?	504	84.00
6.	Do you know the Kisan Call Centre helpline number?	501	83.50
7.	Are you aware about various farm implements used by the farmers?	494	82.33
8.	Do you know the difference between seed and grain?	491	81.83
9.	Do you know the difference between organic and inorganic fertilizers required for the growth of the plant?	486	81.00
10.	Are you aware about the types/classification of seeds?	483	80.50
11.	Do you know how to collect soil samples from farmers' field?	478	79.67
12.	Do you know the layout and designs of vermicomposting structures?	469	78.17
13.	Do you know about Sub-Surface irrigation?	428	71.33
14.	Are you aware about the role of custom hiring centers?	412	68.67

15.	Are you aware about the procedure to measure micro-nutrients present in a soil sample on your own in a laboratory?	216	36.00
16.	Are you aware about the procedure to measure N, P, K quantity present in a soil sample on your own in a laboratory?	196	32.67

From the results (Table 3.14) it can be inferred that majority of the respondents were having good knowledge on agriculture and allied aspects.

Knowledge of agri-input dealers on use of pesticides

The one-year diploma course will help the input dealers to acquaint with knowledge on use of different chemicals used for the control of different insects. It is very essential for an agri-input dealer to become aware of different pests also affecting their crops and other enterprises. The results on Knowledge of agri-input dealers on use of pesticides presented in Table 3.15.

Table 3.15: Knowledge of agri-input dealers on use of pesticides n=600

No	Insect	Yes	
		F	%
1.	Termites	535	89.17
2.	Rats	496	82.67
3.	thrips	493	82.17
4.	Ants	465	77.50
5.	Cockroaches	449	74.83
6.	Mosquitoes	447	74.50
7.	Bugs	438	73.00
8.	Mites	422	70.33
9.	Snails	409	68.17
10.	Beetles	406	67.67

The knowledge on chemical method of pest control among respondents revealed that 89.17% of the respondents could able to recommend at least one chemical to control termites, this number was 82.67% in rats, 82.17% in thrips and 77.5% in ants. Interestingly this response ranged between 73 to 75% for pests of common household/ animal sheds such as cockroaches mosquitoes and bugs.

Between 30 to 33% of the respondents were not able to recommend at least one chemical for the control of mites, snails and beetles which also cause significant loss for amount of crops in different regions.

Knowledge of agri-input dealers on pest and disease management of important crops

DAESI Course is a comprehensive curriculum covering all the agricultural and horticultural crops. The course curriculum of DAESI program was designed to cover all the important agriculture and horticulture crops even if they are not a major crop in that region. The course curriculum has flexibility that SAMETIs at state level can modify the course curriculum by including the important crops grown in that agro-climatic region. By this, the participants are exposed to the package of practices of all important local crops also. Hence, it is very essential to know the knowledge of pest and disease management of agriculture and horticulture crops as the input dealers have to recommend control measures based on the identification of pest and disease.

Table 3.16: Knowledge of agri-input dealers on pest and disease management of important crops **n=600**

Sr. No.	Crops	Pest		Disease	
		F	%	F	%
Agriculture crops					
1.	Paddy	487	81.17	552	92.00
2.	Red gram/Green gram	359	59.83	378	63.00
3.	Wheat	353	58.83	414	69.00
4.	Sugarcane	347	57.83	397	66.17
5.	Cotton	344	57.33	356	59.33
6.	Jowar/Bajra	326	54.33	377	62.83
7.	Groundnuts	318	53.00	366	61.00
8.	Sunflower/Sesame	302	50.33	341	56.83
9.	Bengal gram	268	44.67	294	49.00
Horticulture crops					
10.	Tomato/Brinjal	413	68.83	465	77.50
11.	Turmeric/Chillies	362	60.33	400	66.67
12.	Mango/Banana	342	57.00	390	65.00
13.	Sapota/Guava	305	50.83	327	54.50
14.	Grapes/ Pomegranate	297	49.50	318	53.00

The results presented in Table 3.16 revealed that the response of knowledge of agri-input dealers on pest management is ranging between 81.17 % to 44.67% in case of agriculture crops and 68.83% to 49.50% in case of horticulture crops. In case of disease

management. the numbers were ranging from 92.00% to 49.00% in agriculture crops and 77.50% to 53.00% in horticulture crops.

The results indicate that there is a noticeable gap in knowledge of pest and disease management practices among input dealers. This might be due to the fact that the major crop in one state may not be predominantly grown in other region and hence may be less emphasised by trainers.

Competency of DAESI trained input dealers to serve as para extension worker in agriculture

The major objective of DAESI program is to transform the existing input dealers into para extension workers. In order to become an effective para extension worker, the respondents should possess good knowledge on the subject, communication skills and be able to demonstrate important concepts and activities on his own. The DAESI curriculum covering wide range of topics related to agriculture and allied activities, the eight field visits and practical sessions might have helped the participants to have hands on experience on various skills which are very essential for a para extension worker.

Table 3.17: Perceived competency of DAESI trained input dealers to serve as para extension workers in agriculture n=600

No.	Statements	Average Score
1.	Ability to guide the farmers to collect soil samples from farmers' field	3.73
2.	Ability to recommend micronutrient sprays to farmers (Dosage and timing)	3.64
3.	Ability to diagnose a pest and disease infestation in a farmers' field	3.61
4.	Ability to recommend fertilizer dosage to farmers (Important crop/crops)	3.61
5.	Ability to diagnose the Nutrition deficiency	3.53
6.	Are you aware about recommended dose of NPK for major crop in your area	3.50
7.	Knowledge on irrigation scheduling	3.49
8.	Ability to Design and layout of vermicomposting structures	3.17
9.	Ability to teach pruning and training of at least one horticultural crop in your area	2.85
10.	Do you know the procedure of preparing Bordeux mixture	2.80
11.	Ability to do the soil sample analysis on your own in a laboratory	2.70
12.	Ability to identify important animal disease symptoms	2.57

The results revealed that out of the 12 skills, majority of the respondents possess skills on guiding the farmers to collect soil samples from farmers' field, followed by The list of 12 identified skills to become an effective para extension worker were presented to

the respondents to assess their own para extension worker skills. The responses were taken on a likert scale with values from 1-5 with 1 being lowest capability and 5 being highly capable. The results of agri-input dealers capabilities as para extension workers is presented in Table 3.17

Ability to recommend micronutrient sprays to farmers (Dosage and timing), diagnosing a pest and disease infestation in a farmers' field, Ability to recommend fertilizer dosage to farmers (Important crop/crops) diagnosing the nutrition deficiency of plants, awareness about recommended dose of NPK for major crop in your area, knowledge on irrigation scheduling and to design and layout of vermicomposting structures.

It was also understood from the table that majority of the respondents had expressed the lack of skill to teach pruning and training of at least one horticultural crop in their area, lack of skill in preparation of bordeaux mixture, to do the soil sample analysis on their own in a laboratory and to identify important animal disease symptoms.

The results suggests that under DAESI 2.0 the interested agri-input dealers may be trained on various skills like testing the soil sample on their own in a laboratory, consultancy services for diagnosing and treating various plant and animal diseases. The DAESI trained input dealers may be provided skill trainings on these components at SAUs and KVKs to help them to become an effective para extension worker and to serve the farmers.

Entrepreneurial Behaviour

Table 3.18: Method of working the scale values

ri	Ri	Attributes for Entrepreneurial Behaviour									SUM	P	C
		A1	A2	A3	A4	A5	A6	A7	A8	A9			
1	**9**	13	5	2	6	10	6	1	1	5	**49**	**94.44**	**8**
2	**8**	4	10	12	5	4	7	2	5	2	**51**	**93.75**	**7**
3	**7**	8	4	12	5	8	4	2	2	5	**50**	**92.86**	**6**
4	**6**	6	8	6	12	4	5	1	4	4	**50**	**91.67**	**6**
5	**5**	4	6	7	8	8	4	2	3	8	**50**	**90.00**	**5**
6	**4**	6	5	4	5	7	13	4	4	2	**50**	**87.50**	**4**
7	**3**	3	4	3	4	3	7	15	7	7	**53**	**83.33**	**4**
8	**2**	2	3	3	2	4	2	11	10	10	**47**	**75.00**	**3**
9	**1**	4	5	1	3	2	2	12	14	7	**50**	**50.00**	**2**
Σfji		**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**450**	**758.55**	
Σfjc		**286**	**312**	**322**	**316**	**331**	**316**	**257**	**265**	**291**	**2748**	**4762.92**	
MC=Ri		**5.72**	**6.24**	**6.44**	**6.32**	**6.62**	**6.32**	**5.14**	**5.3**	**5.82**			
Rc		**6.47**	**7.70**	**8.17**	**7.89**	**8.59**	**7.89**	**5.10**	**5.48**	**6.71**	**64.00**		

1. ri= Rank given by judges to ten variables

2. Ri= rank values (in the reverse order of ranks i.e., rank one getting nine, rank two getting eight)

3. Σ=total number of judges (frequency distribution) among several variables

4. P=centile value= $\frac{(Ri-0.5)}{n} \times 100$

Where Ri=rank value; n=number of variables ranked;

5. C=values determined to each centile value.

6. Σfji=Total number of judges who have ranked nin ecomponents.

7. Σfjic= Ca or CJ

7. Rc=2.357XRj-7.0

Table 3.19: Computed scale values for nine attributes

Sl. No.	Attribute	Scale Value
A1	Innovativeness	6.47
A2	Achievement motivation	7.7
A3	Decision making	8.17
A4	Risk bearing ability	7.89
A5	Knowledge	8.59
A6	Communication skills	7.89
A7	Media utilization behaviour	5.1
A8	Social networking skills	5.48
A9	Managerial skills	6.71

Entrepreneurship has been recognized as an important factor to create evolution toward known sustainable products and processes. Entrepreneurship is closely linked to economic and social development of countries and is regarded as a development indicator in the third world countries. Entrepreneurship promotion in agriculture is one of the most appropriate options for boosting agricultural businesses and increasing value added from agricultural product exports. In order to boost the production and exports in agriculture,

advisory services by the agri-input dealers play an important role. Hence, the agri-input dealers must have the entrepreneurial skills.

To be an effective entrepreneur, nine attributes listed above are considered essential. These attributes will help the agri-input dealers to establish and run their business successfully. There are two parts to entrepreneurship. The first is the managerial skills needed to start and run a profitable farm business. The second is 'entrepreneurial spirit'. Both are important. Managerial skills can be taught, but it is difficult to teach entrepreneurial spirit.

The results from the Table 3.20 reveals that more than one-third of the respondents had 'medium (33.67%)' to 'high (35.67%)' entrepreneurial behaviour. The result implies that the course curriculum of DAESI and interaction with different resource persons from different sectors might help them to gain the entrepreneurship skills and confidence in them for running an agri-enterprise.

Table 3.20: Classification of respondents based on their EBI n=600

Sl. No.	Category	Number	Percentage
1.	Very Low (43.88-55.10)	30	5.00
2.	Low (55.11-66.32)	106	17.67
3.	Medium (66.32-77.53)	202	33.67
4.	High (77.56-88.77)	214	35.67
5.	Very High (> 88.77)	48	8.00
	Total	**600**	**100.0**

Estimation on identifying the influential factors on the knowledge, capability as para extension worker and entrepreneurial behaviour of respondents

Efroymsons stated that step wise regression has got the added advantage that at each stage of analysis, every variable is subjected to an examination for its predictive value. The partial regression co-efficient (byi.j) represents the change in dependent variable (y) with a unit change in independent variable (x1) keeping other variables constant and it was tested with Students't test for its significance.

The various independent variables had their own unit of measurement, which did not permit a comparison of the partial regression coefficient (byi.j) values. To facilitate comparison among the partial regression coefficient (byi.j) values, they were converted into standardized partial regression coefficient (b'yi.j) values, which were free from the units of measurement. Based on the absolute values of standardized partial regression coefficient (b'yi.j), they were ranked from highest to lowest order of contribution.

Stepwise regression analysis by selected independent variables over knowledge level of respondents

The stepwise regression analysis was carried out for explaining the variation in the knowledge level of the respondents. All the 7 selected independent variables, capability as para extension worker and attributes of entrepreneurship were taken into account in the stepwise regression analysis as described in Table 3.21

Five variables viz., education, capability as para extension worker, communication skills, media utilization behaviour and innovativeness all together explained as much as 42.30 per cent of total variation in the respondents' knowledge level. The unexplained variation of (57.70%) could be attributed to factors other variables. Table 25 shows the't' values for education, capability as para extension worker, communication skills, media utilization behaviour and innovativeness were found significant either at 5% or at 1% level indicating significant contribution of these four variables in knowledge level of respondents.

It can be inferred that a person with high education, innovativeness, communication skills, capability as para extension worker and media utilization behaviour will strive to seek for new information, technologies available around him to improve their knowledge level on the subject. The improved knowledge will in turn help the respondents to deal with the problems faced by the farmers and enable them to provide appropriate solutions to the farmers.

Table 3.21: Estimation on identifying the influential factors on the knowledge level of respondents **n=600**

No.	Independent Variable	Partial regression coefficient	Standard error of partial regression coefficient	Standard partial regression coefficient	Rank
1	Education	0.365**	0.030	0.425	I
2	Capability as para extension worker	0.033**	0.007	0.204	II
3	Communication skills	0.096**	0.024	0.162	II
4	Media utilization behaviour	0.090**	0.028	0.123	IV
5	Innovativeness	0.045**	0.017	0.114	V

** Significant at 0.01 level of probability R^2=0.423 Constant =9.924

Calculated f= 13.911 df=5, 594

Stepwise regression analysis by selected independent variables over capability as para extension worker of respondents

The data presented in the table reveals that nine variables achievement motivation, innovativeness, education, knowledge, decision making, managerial skills, communication skills, media utilization behaviour and social networking behaviour explained 61.40% variation in the capability level of respondents as Para extension workers. The un explained variation (38.60%) can be attributed to the other variables.

It can be inferred from the results that the nine factors mentioned in the table 3.22 were found to be significant among all the variables. The result implies that education, knowledge level and seven other attributes of the entrepreneurship of the respondents played a major role in the capabilities of para extension worker of the respondents. The person with higher education, knowledge level and other attributes such as innovativeness, achievement motivation, decision making, managerial skills, communication skills, media utilization behaviour and social networking behaviour influenced the respondents to develop the skills of para extension worker.

Table 3.22: Estimation on identifying the influential factors on the capability as para extension worker of respondents n=600

No.	Independent Variable	Partial regression coefficient	Standard error of partial regression coefficient	Standard partial regression coefficient	Rank
1.	Achievement Motivation	0.878**	0.131	0.279	1.
2.	Innovativeness	0.685**	0.102	0.261	2.
3.	Education	1.306**	0.166	0.247	3.
4.	Knowledge	1.077**	0.196	0.175	4.
5.	Decision Making	0.396**	0.074	0.150	5.
6.	Managerial Skills	0.395**	0.078	0.142	6.
7.	Communication Skills	0.415**	0.154	0.101	7.
8.	Media Utilization Behaviour	0.420*	0.180	0.094	8.
9.	Social Networking Behaviour	0.283*	0.126	0.081	9.

* Significant at 0.05 level of probability ** Significant at 0.01 level of probability

R^2=0.614 Constant =43.041 Calculated f= 104.187 df=9,590

Stepwise regression analysis by selected independent variables over entrepreneurial behaviour of respondents

The results presented in the Table 3.23 reveals that 28.40% of the variation in the entrepreneurial behaviour is explained by the three variables, capability as para extension worker, knowledge and primary occupation. The remaining 71.60% was contributed by other variables. Knowledge and capability as para extension worker are the major factors responsible for entrepreneurship, a person with higher knowledge levels and capabilities as para extension worker will strive to be an effective entrepreneur. It is understood from the results that as majority of the respondents had agriculture and Business as their primary occupation and 66.16% of them were successful in establishment of shops after completion of DAESI course which was majorly due to the entrepreneurial behaviour acquired by the respondents during the one year DAESI program.

Table 3.23: Estimation on identifying the influential factors on the entrepreneurial behaviour of respondents **n=600**

No.	Independent Variable	Partial regression coefficient	Standard error of partial regression coefficient	Standard partial regression coefficient	Rank
1.	Capability as para extension worker	0.399**	0.036	0.424	I
2.	Knowledge	0.998**	0.222	0.173	II
3.	Primary Occupation	0.832**	0.377	0.077	III

* Significant at 0.05 level of probability ** Significant at 0.01 level of probability

R^2=0.284 Constant =18.838 Calculated f= 78.967 df=3, 596

Constraints faced by respondents

The various constraints faced by the respondents are listed under personal constraints, marketing constraints, situational constraints, economic constraints and extension constraints. The details of the constraints faced by the respondents is presented in Table 3.24

Personal constraints

The personal constraints faced by the entrepreneurs were listed in Table 25 and revealed that one-third (34.33%) of the respondents perceived fear of failure due to risk in business as major constraint. Lack of support from family members (33.17%), difficulty to keep records (32.00%), lack of interest in business (30.835) and lack of skills related to input dealing (30.83%) were the other personal constraints perceived by the respondents.

Table 3.24: Constraints faced by respondents

No.	Constraints	Yes	
		F	%
I.	**Personal constraints**		
1.	Fear of failure due to risk involved	206	34.33
2.	Lack of support from family members	199	33.17
3.	Difficulty to keep records/ bookkeeping	192	32.00
4.	Lack of interest in business	185	30.83
5.	Lack of skills related to input dealing	185	30.83
II.	**Marketing Constraints**		
6.	Fluctuations in market demand for inputs and seasonality	445	74.17
7.	Frequent market price fluctuation	409	68.17
8.	Unavailability of inputs including fertilizer, insecticides and pesticides at the right time	362	60.33
9.	Middleman malpractices in the supply chain	287	47.83
III.	**Situational constraints**		
10.	Highly competitive business environment	432	72.00
11.	Lack of policy support	255	42.50
12.	Lack of departmental/ government cooperation	253	42.17
13.	Local political pressure/ influence	252	42.00
14.	Unavailability of storage facility in the area	245	40.83
15.	Delayed renewal of license	224	37.33
IV.	**Economic/ financial constraints**		
16.	High cost of inputs (fertilizers/ manures/ plant protection chemicals)	394	65.67
17.	Lack of investment capital	369	61.50
18.	High transportation cost	354	59.00
19.	High credit business	344	57.33
20.	Poor returns to capital	336	56.00
V.	**Extension constraints**		
21.	Lack of consultancy and counselling service	291	48.50
22.	Lack of technical knowledge of new product and cultivation practices.	245	40.83
23.	Lack of knowledge about modern technology	234	39.00
24.	Lack of business management training	230	38.33
25.	Lack of motivation	215	35.83

From the results it can be observed that nearly one-third of people have perceived them as constraints in establishing and running business.

Marketing constraints

Out of the marketing constraints listed, fluctuations in market demand for inputs and seasonality (74.17%) was the major constraint perceived by the respondents, followed by frequent market price fluctuation (68.17%), unavailability of inputs during right time (60.33%) and middleman malpractices in the supply chain (47.83%).

Situational constraints

Situational constraints are factors that limit the extent to which attitudes, personal characteristics, and motivation translate into behaviours and performance. Highly competitive business environment was faced by majority (72.00%) of the respondents, lack of policy support (42.50%), lack of departmental/ government cooperation (42.17%), local political pressure/ influence (42.00%), unavailability of storage facility in the area (40.83%) and delayed renewal of license (37.33%).

Economic/ financial constraints

Economic constraints are external factors that limit entrepreneur, the freedom to do whatever it wants, and they are usually beyond the individual control. Nearly two-third of the respondents (65.67%) felt high cost of inputs as major constraint. Lack of investment capital (61.50%), high transportation cost (59.00%), high credit business (57.33%) and poor returns to capital (56.00%) were other constraints faced by them.

Extension constraints

Extension constraints are those factors which limits the entrepreneurs to reach large number of farmers in their agri-input business. Lack of consultancy and counselling service (48.50%) was the major extension constraint perceived by the respondents, followed by lack of technical knowledge of new product and cultivation practice (40.83%), lack of knowledge about modern technology (39.00%), lack of business management training (38.33%) and lack of motivation (35.33%) respectively.

Out of all the constraints listed, majority of input dealers have perceived marketing, economic and situational constraints as major constraints that were affecting their agri-

input business. Hence, the DAESI curriculum should be reoriented to include more hands on experience for management of stock register, various records and awareness about legal issues. Refresher training programs should be organised to the trained input dealers frequently to update their knowledge on new technologies and new cultivation practices.

Agricultural department should place the inputs as per the cropping season in order to avoid black marketing and to avoid middleman in the supply chain. The DAESI trained input dealers should be given a preference for renewal of license and should promote their enterprises for better consultancy services. The respondents those who were not able to establish shops and who were facing difficulty in running their shops shall be made aware and shall be linked to various other schemes for running their business.

4. RECOMMENDATIONS

Based on the various results and observations during this study, important recommendations identified are listed below. Agri-input dealers being the first and foremost source of information for the farmers, their knowledge on agriculture, their favourable attitude towards farmers and their competency in giving right agro-advisories to the farmers is very critical to the success of agriculture in India. In order to make this happen, all the stakeholders responsible for implementation of DAESI program must play an important active and responsible role to enable the agri-input dealers become more knowledgeable and responsible to serve farmers in India.

1. The percentage of respondents establishing the shops was lesser among the lower income groups. This suggests that the agri-input business demands capital and financial support can help the lower income group to take up this agri-business activity.
2. The maximum enrolment of respondents under DAESI program were possible through the publicity by agriculture department/ ATMA of the district. A pan-India registration and application processing portal may be developed to help the ATMA/ Agriculture Department officials in the publicity and enrolment of candidates under DAESI program.
3. Large number of candidates enrolled under DAESI program expressed the willingness to become para-extension worker and to help farming community through extension as their primary motivation to join DAESI program. Such candidates must be systematically guided and trained to serve as para-extension worker to work in co-ordination with department of agriculture. The department of agriculture must also create an enabling environment to encash on their willingness and competency to serve farmers.
4. The results of the study indicate that females outperformed men with respect to percentage of people establishing agri-input business shop among the trained. This encouraging trend must be incentivized through special schemes for women venturing into agri-business.
5. Location of the agri-input shops in the villages will help the farming community a lot in accessing the agri-inputs timely. However, the business challenges and constraints faced by the agri-input dealers in the villages such as high transaction

costs and low volumes must be compensated with incentives such as subsidised electricity, grant for infrastructure creation such as godowns and testing laboratories.

6. The entrepreneurial behaviour among the input dealers trained under self-finance scheme of DAESI program belong to medium and high categories of entrepreneurial behaviour index. Hence, they need to be provided with training and capacity building by the department of agriculture to enhance their entrepreneurial abilities.
7. The knowledge level of the DAESI trained input dealers is medium to high. However, the shortfall in their knowledge needs to be bridged through regular training and capacity building programs as any misguided information has severe financial implications to their contact farmers.
8. The highly knowledgeable input dealers must be used as resource persons and master trainers for organizing skill based trainings and awareness programs to farmers at district level.
9. The knowledge on animal husbandry and some of the secondary agriculture practices among the input dealers was inadequate. The Nodal Training Institutes imparting DAESI training to the input dealers must address this issue through meticulous designing of training calendar and inviting concerned resource persons.
10. The curriculum of DAESI program must be revisited to accommodate the emerging needs of the farmers. The curriculum of DAESI program must be revisited to include more of skill based classes and field visits rather than emphasizing on theory classes.
11. The level of knowledge and competency as para-extension worker among DAESI trained input dealers was varying among different types of skills and awareness. The gap observed can be addressed through more number of practical sessions, field visits, group discussion etc. instead of mandate theory classes.
12. Many competent input dealers trained under DAESI may be supported with agri-infrastructure fund to pursue agri-consultancy, procurement and processing centres storage infrastructure, agri-logistics etc. They must also be encouraged to use facilities such as soil testing laboratory and bio control laboratories of KVK and agriculture department on public private partnership mode.

13. The Nodal Training Institutes who are organizing the DAESI programs under self-finance mode should identify the willingness of the candidates to establish the shops and to serve the farming community as Para-extension worker. The identified candidates should be provided support by the agriculture department in availing bank loans and easing the procedure for grant of license for the establishment of shops.
14. The DAESI trained input dealers must be given preference by the agriculture department in the sale of subsidised inputs such as seeds and bio fertilizers through these shops which also will increase the visibility of their business.
15. Since they are working in close proximity with large number of farmers in village, the services of the DAESI trained input dealers may be utilized as para extension workers to disseminate knowledge on various agricultural schemes, policies, promotion in the formation of FPOs, sensitizing about nutrition sensitive agriculture and natural farming etc.
16. Lack of financial support, capital intensive nature of business and high credit are the top three reasons for not establishing agri-input enterprises by the respondents trained under DAESI. Therefore, the department should provide financial support through linking of banks.
17. At present the ratio of extension agents to farmers is very high which makes the rendering of the services to the farmers difficult. In order to transform agri-input dealers into para extension workers and utilize their services in the mainstream extension system, digitalization of information of agri-input dealers is very essential. Through digitalization of database of agri-input dealers, their location, resourcefulness, competency to help farmers can be compiled. The information can also be used to invite them to work in collaboration with department of agriculture in all the states. Also the training programs can be planned to the input dealers periodically to update their knowledge.
18. Physical mapping of input dealers' location through GIS and updating them in google maps of the people those who have established shops will help the farmers to identify the services available around them.
19. Establishment of extension corner/ information centre/ information kiosk may be made compulsory among the DAESI trained input dealers who applies for the

license to the department of agriculture. The extension corners must be linked with KVKs/SAUs to provide the updated information.

APPENDIX-I

ENTREPRENEURIAL BEHAVIOR ANALYSIS OF DAESI DIPLOMA HOLDERS TRAINED UNDER SELF-FINANCE SCHEME

I. PERSONAL & GENERAL INFORMATION

1. Name of the candidate:

2. Father's Name:

3. Mobile number:

4. Village:

5. District:

6. State:

7. Age:…….(in years)

8. Education (highest):

a) 10^{th} b) 12^{th} c) Graduate d) Post-graduate and above

9. Type of family:

a) Nuclear b) Joint

10. Number of adult family members:_____

11. Size of landholdings:……..(in acres)

12. Irrigated land:……(in acres)

13. Main source of irrigation: ……

14. Primary occupation: _____

15. Secondary occupation:_____

16. Earnings from primary occupation (per year):_____(In rupees)

17. Earnings from secondary occupation (per year): _____(In rupees)

18. How did you come to know about DAESI program?

a) Newspaper b) Magazines c) E-mail d) Leaflets/pamphlets

e) Radio f) Television g) WhatsApp h) Facebook

i) Department notice board j) from other input dealers k) Agriculture Department

19. What is your main motivation to enroll in DAESI programme?

a) Agri-input dealer shop in your own area is very profitable

b) Your own family requirement of inputs is very high

c) To obtain diploma certificate to transfer license to my name

d) To become a para-extension worker to help farming community through consultancy

e) Other

20. Date and Year of Completion of DAESI Course _____

21. Date and Year of Establishment of Shop after availing the certificate_____

22. After completing DAESI diploma, have you started your business as an agri-input dealer? Yes/No

23. If yes, give the answers of following questions:

1.	Since when you are doing agri-input business? a) Less than one year b) 1-2 years c) 2-5 years d) 5-10 years e) More than 10 years
2.	If having an agri-input shop, Floor Area of the shop (Specify in Sq feet):…….. Floor area of the Godown (Specify in Sq feets):……..
3.	The input dealer's shop is located in (Tick any one from the following) a) Village b) Town (Taluk/Mandal/block) c) District
4.	Type of ownership a) Single proprietorship b) Partnership
5.	The distance of your shop from other nearest input dealers' shop is (Tick any one from the following) a) Less than 1 km b) 1-5 km c) 5-10 km d) More than 10 km
6.	Who sits most of the times in your shop counter? (tick the appropriate answer) a) Self b) Mother c) Father d) Spouse e) Appointed manager f) Son g) Daughter h) Grandchildren
7.	What are the products sold by you? a) Seeds b) Fertilizers c) Pesticides/herbicides/fungicides d) Agricultural tools & implements e) Storage chemicals f) Seed treatment chemicals g) Bio-fertilizers
8.	Which of the following agro-input services are offered by you to the farmers? a) Input packaging b) Soil fertility information c) Seed variety information d) Agro-chemicals information e) Credit facilities f) Pest and disease management
9.	Which of the following are available for sale in your shop? (More than one option can be ticked) a) Face mask b) PPE kit c) Hand sanitizer d) Spraying machine
10.	How do you access internet in your shop? a) Mobile data b) Optical fiber with Wi Fi router c) Broadband with Wi Fi router

11.	Farming enterprises practiced (Tick only those applies to you) a) Agriculture b) Animal husbandry c) Horticulture d) Fisheries e) Poultry
12.	How do you rate the prospect of your agri-input business? (Financial terms) a) Very challenging b) Comfortable c) Profitable d) Highly profitable
13.	How do you feel about your agri-input business venture? (management point of view) a) very stressful b) Comfortable c) Highly enjoyable

24. If no, Please tick the suitable reason from the below:

No	Reason	Yes	No
1.	Lack of financial support from banks and financial institutions		
2.	High credit business		
3.	Business is capital intensive		
4.	Non-supportive government policies		
5.	Inability to proper market planning		
6.	Fear of competition		
7.	Inaccurate evaluation of project (DPR)		
8.	Bottlenecks in obtaining license from the department to start the business		
9.	Complex legal issues		
10.	Problems of partnership and team work		
11.	Lack of professional advice to run the enterprise		
12.	Lack of related experience, expertise and good work relationships		
13.	Problems in product or service supply		
14.	Inadequate training under DAESI		
15.	Non-Supportive attitude by the family members		
16.	Lack of interest and dissatisfaction in work or work place		

25. Do you have extension corner? Yes/No

a) If Yes, Facilities in the Extension corner

Particulars	Yes	No
Farm Magazines		
Newspapers		

TV/Electronic screen		
Books on Agriculture		
Samples of inputs		
Paid agri-consultancy services		
Articles written in books and magazines		
List of experts and their contact number (ATMA/KVK/SDA and allied departments)		
List of Institutes and their contact number (ATMA/KVK/SDA and allied departments)		

b) If No, Reasons for not setting up extension corner:

1.

2.

26. Whom do you approach for the information related to the given topics

Item/Source of Information	Facilitator	SDA	Scientists from KVK	Scientists from SAUs	Sales representative	Progressive Farmers	Mobile Apps	KCC
Disease								
Pest								
Weed								
Agricultural scheme								
Bank loans								
Extension of demonstrations								

27. Please tick yes/no for the following questions

Sl. No.	Question	Yes	No
6.	Are you part of input dealers WhatsApp group?		
7.	Are you part of agri-consultants WhatsApp group?		
8.	Have you created a WhatsApp group for your farmers?		
9.	Is your input stock computerized?		
10.	Is cash receipts computerized in your shop?		

II. ASSESSMENT OF CAPABILITY OF DAESI TRAINED INPUT DEALERS TO SERVE AS PARA-EXTENSION WORKERS IN AGRICULTURE

Give your capability on a scale of 1 to 5.

(5 indicates highest capability and 1 indicates low capability.)

Sr. No.	Statements	1	2	3	4	5
1.	Ability to guide the farmers to collect soil samples from farmers' field					
2.	Ability to diagnose the Nutrition deficiency					
3.	Ability to diagnose a pest and disease infestation in a farmers' field					
4.	Knowledge on irrigation scheduling					
5.	Are you aware about recommended dose of NPK for major crop in your area					
6.	Do you know the procedure of preparing Bordeux mixture					
7.	Ability to teach pruning and training of at least one horticultural crop in your area					
8.	Ability to Design and layout of vermicomposting structures					
9.	Ability to identify important animal disease symptoms					
10.	Ability to do the soil sample analysis on your own in a laboratory					
11.	Ability to recommend fertilizer dosage to farmers (Important crop/crops)					
12.	Ability to recommend micronutrient sprays to farmers (Dosage and timing)					

III. KNOWLEDGE PRE-TESTING (GIVE THE ANSWERS IN YES/NO)

No	Question	Yes	No
1.	Are you aware about Rabi/Kharif/Summer seasons? (……/……/…….in vernacular language		
2.	Are you aware of total number of essential nutrients required for plant growth?		
3.	Are you aware of how to maintain stock of inputs in the shop?		
4.	Do you know the crop duration of important crop varieties in ……?(major crop of district)		

5.	Do you know the essential nutrients required for plant growth?		
6.	Do you know the Kisan Call Centre helpline number?		
7.	Are you aware about various farm implements used by the farmers?		
8.	Do you know the difference between seed and grain?		
9.	Do you know the difference between organic and inorganic fertilizers required for the growth of the plant?		
10.	Are you aware about the types/classification of seeds?		
11.	Do you know how to collect soil samples from farmers' field?		
12.	Do you know the layout and designs of vermicomposting structures?		
13.	Do you know about Sub-Surface irrigation?		
14.	Are you aware about the role of custom hiring centers?		
15.	Are you aware about the procedure to measure micro-nutrients present in a soil sample on your own in a laboratory?		
16.	Are you aware about the procedure to measure N, P, K quantity present in a soil sample on your own in a laboratory?		

IV. Name the commonly used pesticides for controlling the following pests

No	**Insect**	**Name the Pesticide used for control of the insects**			
		Pesticide-1	**Pesticide-2**	**Pesticide-3**	**Pesticide-4**
11.	Termites				
12.	Snails				
13.	Bed bugs				
14.	Beetles				
15.	Mosquitoes				
16.	Mites				

17.	Thrips				
18.	Ants				
19.	Rats				
20.	Cockroaches				

V. Name the most common diseases and pests found in the following crops (only one each). If you do not know, leave it blank. Do not guess:

Sr. No.	Crops	Name of disease	Name of the pest
1.	Paddy		
2.	Jowar/Bajra		
3.	Wheat		
4.	Red gram/Green gram		
5.	Bengal gram		
6.	Groundnuts		
7.	Sunflower/Sesame		
8.	Cotton		
9.	Sugarcane		
10.	Turmeric/Chillies		
11.	Mango/Banana		
12.	Sapota/Guava		
13.	Grapes/ Pomegranate		
14.	Tomato/Brinjal		

VII. ENTREPRENEURIAL BEHAVIOUR OF NON-LICENSEE DEALERS TRAINED UNDER DAESI DIPLOMA

D_1	**Innovativeness**	**SA**	**A**	**N**	**DA**	**SDA**
1.	Selling new varieties of seeds of new companies					
2. -	Selling new types of fertilisers such as neem coated urea					
3.	Selling new types of pesticides such as Trichoderma bio agent, bio-pesticides, etc.					
4.	Having new types of modern agricultural techniques and their knowledge					
5.	Knows about balanced dosage of fertilisers					
6.	Selling agricultural inputs regularly and on time					
D_2	**Achievement motivation**	**SA**	**A**	**N**	**DA**	**SDA**
1 A b	I like to do a task That is to be much better than other agri-input dealers Is that to finish the task priorly					
2 A b	I wish to Become an average agri-input dealer Become a successful agri-input dealers					
3 A b	I think my success depends upon My hardwork in running the enterprise My parents and relatives					
4 A b	I like to Earn more profit Fulfil my minimal requirements					
5 A b	After 10 years, my situation will be As a famous agri-input dealer Same as it is today					
D_3	**Decision making ability**	**SA**	**A**	**N**	**DA**	**SDA**
1	Buying new varieties of seeds					
2	Buying new types of fertilisers					
3	Buying new types of pesticides and medicines					
4	For quality and performance of agricultural input products					
5	For quantity of agri-inputs					
6	To buy and sell goods on credit					
7	For advertising and promotion					
D_4	**Risk bearing ability**	**SA**	**A**	**N**	**DA**	**SDA**
1.	An agri-input dealer must take more risk than other dealers					

2.	An agri-input dealer should buy a new product only after it has been successfully sold by any othet agri-input dealer					
3.	Seeling a new product is very risky, but it is valuable					
4.	Selling agricultural inputs is very risky					
5.	Vendors in agri-input enterprise have to maintain risk for growth					
6.	Agri-input dealers should keep new types of products instead of old products					
D_5	**Knowledge**	**SA**	**A**	**N**	**DA**	**SDA**
1	I believe that there is increase in technical knowledge of location -specific crops					
2	I am aware of the crop production technology of major local crops					
3	I am strongly aware of the various policies and flagship programmes related to agricultural development					
4	I believe that there is considerable increase in my business turnover					
5	I have sufficiently gained knowledge about pest and disease management of local crops					
6	I am capable of addressing field level issues and guide farmers					
D_6	**Communication skills**	**SA**	**A**	**N**	**DA**	**SDA**
1	I owe self-confidence in conducting demonstrations and solving field level issues					
2	I often take part in peer group discussions with farmers					
3	I keep on sharing any useful information directly with farmers					
4	I have the ability to convey the message effectively					
D_7	**Media Utilization Behaviour**	**SA**	**A**	**N**	**DA**	**SDA**
1	I feel Social media is the best and easiest way of sharing information among peer network groups					
2	I manage to find time to read pamphlets and leaflets containing agri-related information					
3	I regularly update myself with agri-portals and websites					
4	I used to watch agriculture related programs on Television					
D_8	**Social Networking Skills**	**SA**	**A**	**N**	**DA**	**SDA**
1	I play an active role in community activities such as organizing mela's/ cultural programme/festivals.					
2	Villagers regard me as a good source of information on new farm practices					
3	I always have a new approach to solve the pertaining problem.					

4	I am always the first to consult an extension personnel to obtain information on farming related issues.					
5	I always try to find a new market opportunity outside the village.					
D_9	**Managerial Skills**	**SA**	**A**	**N**	**DA**	**SDA**
1	Timely planning of enterprise ensures higher returns					
2	I consult the specialists before opting for a new pesticide/ input.					
3	I keep on checking for the input resources frequently.					
4	I keep track of demand and supply of agri-inputs.					
5	I maintain the financial records up-to-date					

VIII. CONSTRAINTS FACED BY DEALERS AFTER TRAINED UNDER DAESI DIPLOMA

Sr. No.	Constraints	Yes	No
I.	**Personal Constraints**		
26.	Lack of support from family members		
27.	Lack of interest in business		
28.	Fear of failure due to risk involved		
29.	Increased stress due to dual responsibilities		
30.	Failure to keep records/ bookkeeping		
31.	Lack of skills related to input dealing		
III.	**Marketing Constraints**		
32.	Unavailability of inputs including fertilizer, insecticides and pesticides at the right time		
33.	Fluctuations in market demand for inputs and seasonality		
34.	Frequent market price fluctuation		
35.	Middleman malpractices in the supply chain		
36.	Constrained supply of agricultural inputs		
37.	Insufficient market facility		
IV.	**Situational Constraints**		
38.	Highly competitive business environment		
39.	Local political pressure/ influence		
40.	Lack of departmental/ government cooperation		
41.	Lack of policy support		
42.	Unavailability of storage facility in the area		
43.	Delayed renewal of license		

V.	**Economic/ financial Constraints**		
44.	Lack of investment capital		
45.	Poor returns to capital		
46.	High credit business		
47.	High cost of inputs (fertilizers/ manures/ plant protection chemicals)		
48.	High transportation cost		
VI.	**Extension Constraints**		
49.	Lack of technical knowledge of new product and cultivation practices, maintenance of stock		
50.	Lack of knowledge about modern technology		
51.	Lack of business management training		
52.	Lack of consultancy and counselling service		
53.	Lack of motivation		

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