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Pilot Study: An evaluative study of Agri – business practices Adopted by farmers in Pune District

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Abstract:

The agricultural landscape in Pune district is rapidly transitioning from traditional farming to commercial agribusiness. This study evaluates the current agribusiness practices adopted by local farmers, focusing on the systemic enablers and barriers to this transition. By examining financial, operational, and regulatory factors, the research aims to provide actionable insights into how farmers can optimize their yield, profitability, and global market reach.

Agribusiness is a broad term that inclusive all activities related to the production, processing, and distribution of agricultural products. It integrates the supply of inputs like seeds, fertilizers, and machinery (input sector), the actual farming activities (farm sector), and the processing and distribution of agricultural products to the final consumer (product sector). This holistic approach ensures the efficient functioning of the agricultural supply chain, contributing significantly to the global economy.

Keywords: Agri Business practices, Precision agriculture, agriculture policy

INTRODUCTION:

Agribusiness adopted by farmers because they have twin objectives of maximizing farm profit and improving the standard of living of their families. The farm profit is influenced by biological, technological, social, economic, political and institutional factors. Agribusiness practices are mainly classified into various categories such as crop production, livestock production, forestry, and fishing.

In this unit we are going to discuss about agribusiness and its importance in the Indian Economy and the New Agricultural Policy. Agribusiness management encompasses the processes, principles, and functions essential for the successful operation of businesses involved in the food and fiber production and marketing system. This sector includes a diverse array of enterprises, ranging from

small family farms to multinational corporations, each contributing to the global food supply chain. The management of these enterprises is critical, as it ensures the efficient allocation of resources, the satisfaction of consumer demands, and the overall sustainability of the agricultural sector.

II. Research Methodology: -

Primary data:

Research Design: A descriptive and analytical survey design to evaluate existing practices.
Data Collection: Primary data should be gathered via structured questionnaires administered to a representative sample of farmers.

Data Analysis: Use statistical tools, such as correlation and regression analysis, to map relationships between independent variables and dependent outcomes. This can be supported by regression modelling ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$) to quantify impact mathematically.

Secondary data:

1. Earlier Published Paper
2. Websites
3. Articles published in previous Magazine's
4. Articles appeared in newspaper.

III. OBJECTIVES:

Objective 1: To examine the relationship between credit availability and the adoption of agribusiness practices.

Objective 2: To assess the influence of challenges faced by farmers on the adoption of agribusiness practices.

Objective 3: To analyze the role of government schemes in promoting the adoption of agribusiness practices.

Objective 4: To evaluate the effect of agribusiness practices on farm performance.

Objective 5: To examine the relationship between awareness of foreign market opportunities and farmers' willingness to engage in export activities.

Hypothesis:

H0₁: There is no significant relationship between access to credit and adoption of agribusiness practices.

H1₁: There is a significant relationship between access to credit and adoption of agribusiness practices.

H0₂: There is no significant relationship between challenges faced by farmers and adoption of agribusiness practices.

H1₂: There is a significant relationship between challenges faced by farmers and adoption of agribusiness practices.

H0₃: Awareness of government schemes has no significant effect on the adoption of agribusiness practices.

H1₃: Awareness of government schemes has a significant effect on the adoption of agribusiness practices.

H0₄: Adoption of agribusiness practices has no significant impact on farm performance.

H1₄: Adoption of agribusiness practices has a significant impact on farm performance.

H0₅: Awareness of foreign market opportunities has no significant relationship with farmers' willingness to engage in export-oriented agribusiness.

H1₅: Awareness of foreign market opportunities has a significant relationship with farmers' willingness to engage in export-oriented agribusiness.

IV. Literature Review:

The Evolution of Agribusiness:

Agriculture has evolved into agri-business, becoming a vast and complex system that extends far beyond the farm. It encompasses all individuals and organizations involved in bringing food and fiber to consumers. Agri-business includes not only those who farm the land but also the people and firms that provide inputs (e.g., seeds, chemicals, credit), process outputs (e.g., milk, grain, meat), manufacture food products (e.g., ice cream, bread, breakfast cereals), and transport and sell these products to consumers (e.g., restaurants, supermarkets).

From Family Farm to Agribusiness:

In the early 19th century, agriculture was a self-contained industry. The typical farm family produced its own food, fuel, shelter, draft animals, feed, tools, implements, and even clothing. Only a few necessities needed to be bartered for or purchased off the farm. The farm family performed virtually all operations related to the production, processing, storage, and distribution of farm commodities. However, over the years, agriculture evolved from self-sufficiency to intricate interdependence with other segments of the economy, particularly those involved in the manufacture of production supplies and the processing and distribution of food and fiber products.

The agribusiness approach is a method of examining farming problems in a new and more comprehensive setting. One benefit of this approach has been the release of workers—farm manpower—from agriculture for employment in new non-farm occupations, including the armed forces during wars. This has resulted in tremendous economic growth and development and an improved standard of living.

Various agribusiness practices:

Agribusiness practices refer to the commercial and management activities related to

production, processing, marketing, and distribution of agricultural products. Farmers in regions like Pune district adopt several practices to improve productivity, income, and sustainability.

1.Agritourism is the intersection of agriculture and tourism. It involves inviting the public to visit a working farm, ranch, or other agricultural operation to participate in educational, recreational, or leisure activities. In simple terms, it connects urban travellers with rural environments, giving them a firsthand experience of farm life while providing farmers with an additional source of income.

Common Types of Agritourism:

Agritourism can take many forms depending on the region and the size of the farm:

- **Direct-to-Consumer Sales:** "U-Pick" operations where visitors harvest their own fresh produce (like apples, strawberries, or pumpkins), or on-site farm stands and markets.
- **Education and Experiences:** Farm tours, cooking classes using farm-fresh ingredients, beekeeping demonstrations, or learning about sustainable agricultural practices.
- **Entertainment and Recreation:** Petting zoos, corn mazes, tractor/hay rides, fishing, and horseback riding.
- **Hospitality:** Farm stays or converted farmhouses where guests can stay overnight and participate in daily farming chores.

2.Milk processing: Pune district is one of the most prominent dairy and milk processing hubs in Maharashtra. The milk processing agribusiness here is driven by a robust network of cooperative societies, private dairies, and specialized dairy equipment manufacturers—especially concentrated in industrial zones like Bhosari, Chakan, and Pimpri-Chinchwad. Here is a breakdown of how the milk processing agribusiness operates in the Pune district: **Core Processing Operations:** Milk processing facilities in Pune range from small-scale setups (processing a few hundred litres daily) to massive industrial plants handling thousands of litres. The typical agribusiness model focuses on these key stages: **Milk Reception & Chilling:** Milk is collected from local rural farmers and cooperatives across Pune, Satara, and Kolhapur districts. It is immediately stored in bulk chilling tanks to prevent bacterial growth. **Pasteurization & Homogenization:** The raw milk undergoes thermal processing (pasteurization) to eliminate harmful pathogens and homogenization to ensure a uniform consistency by breaking down fat molecules. **Value-Added Products (By-Products):** A significant portion of the agribusiness profit comes from diverting milk into processing skids to create high-margin products. In Pune, plants are highly equipped to manufacture: Curd (Dahi) and Buttermilk (Taak), Paneer and Cheese, Ghee and White Butter, Flavoured milk and Milk Powder.

3.Floriculture: Floriculture, often referred to as flower farming, is a specialized discipline of horticulture that focuses on the cultivation, management, and commercial production of flowering and ornamental plants. While traditional agriculture focuses on food or industrial crops, floriculture is entirely dedicated to aesthetics, landscaping, and the commercial trade of flowers. The floriculture

agribusiness in the Pune district, particularly around Talegaon Dabhade and Maval, is one of the most advanced and commercially successful agricultural hubs in Maharashtra. The region has emerged as a leader in high-tech polyhouse farming, growing premium cut flowers for both domestic markets and international export. The Hub: Talegaon Floriculture Park The core of Pune's floriculture success is the Talegaon Floriculture Park, promoted by the Maharashtra Industrial Development Corporation (MIDC). Located near the Indrayani River, this park spans over 200 hectares. The park is designed specifically to support export-quality flower production: **Infrastructure:** It is divided into over 100 growing units, equipped with internal roads, water supply, and electricity provided at agricultural rates to subsidize production costs. **Post-Harvest Facilities:** The park features world-class post-harvest management centres with grading, pre-cooling, cold storage, and packing facilities, which are essential for extending the shelf life of cut flowers. **Strategic Location:** Its proximity to the Talegaon Industrial Area provides logistical support for transport to Mumbai's export hubs (airports and ports).

Floriculture as a Modern Agribusiness:

Historically, flower farming was done in open fields. However, the modern concept of floriculture is a high-tech agribusiness. To meet the strict quality standards required for export and to ensure year-round yields, modern floriculture relies heavily on **controlled-environment agriculture**. This involves the use of polyhouses and greenhouses where growers can precisely control temperature, humidity, light intensity, and fertigation (fertilizer + irrigation) drips.

4.Value addition in agribusiness refers to the process of transforming raw agricultural commodities into products with a higher economic value, a longer shelf life, and greater consumer appeal. Instead of selling a crop exactly as it was harvested, value is "added" through processing, packaging, or preservation. In the Pune district, value addition has become one of the most promising and rapidly growing sectors, serving as a critical bridge between rural farmers and urban markets.

Levels of Value Addition in Pune: The agribusiness supply chain in the district operates across three main levels of value addition: **Primary Value Addition (Minimal Processing):** This involves cleaning, grading, sorting, and standardizing raw produce immediately after harvest. For example, farmers in the district use primary processing centres to grade export-quality grapes or onions, pack them in specialized ventilated boxes, and place them in pre-cooling units. This does not change the product's form but significantly increases its market price and shelf life. **Secondary Value Addition:** This involves basic transformation of the raw material. Examples in Pune include milling local grains, extracting cooking oils, or utilizing large cold storage facilities to preserve perishable crops so they can be sold off-season when prices are higher. **Tertiary Value Addition (Advanced Processing):** This is the highly industrialized tier where raw crops are turned into ready-to-consume food products. Entrepreneurs and MSMEs in Pune use advanced technologies like dehydration, canning, and thermal processing. This includes converting tomatoes into ketchup, extracting and aseptically packaging fruit

pulps (like mango or guava), manufacturing packaged snacks, or producing frozen ready-to-eat meals.

5. Direct Marketing: Meaning of direct marketing:

Direct marketing is a method of selling agricultural products in which farmers sell their produce directly to consumers or to selected buyers, rather than relying heavily on intermediaries such as wholesalers, commission agents, brokers, or middlemen. The farmer takes greater responsibility for activities such as finding customers, promoting products, negotiating prices, arranging sales, packaging, and sometimes delivering the produce. For example, instead of a farmer selling tomatoes to a wholesaler at the farm gate, the farmer may sell them directly to consumers through a farmers' market, a farm shop, a weekly vegetable box, or online orders. The basic chain can be represented as: **Farmer → Restaurant/Hotel/Institution**. The main purpose is to reduce dependence on intermediaries, obtain a better share of the final selling price, and develop direct relationships with customers.

Why direct marketing is important in agribusiness Agricultural products are often perishable and farmers may have limited bargaining power when selling to intermediaries. Direct marketing provides farmers with greater control over how, where, and to whom their products are sold. It allows farmers to:

- Obtain better prices for certain products.
- Reduce the number of intermediaries.
- Understand consumer preferences directly.
- Build a loyal customer base.
- Add value through grading, packaging, processing, or branding.
- Differentiate their products based on quality, freshness, or production methods.
- Reduce post-harvest losses by selling according to customer demand.
- Develop their farm as a recognizable business or brand.

However, direct marketing does **not automatically guarantee higher profits**. Farmers must consider the additional costs of transportation, packaging, advertising, storage, selling time, and customer service.

3. Major forms of direct marketing used by farmers

A. Farmers' markets Farmers take their products directly to a market where consumers purchase them. For example, a vegetable farmer may take fresh tomatoes, onions, spinach, and other vegetables to a weekly farmers' market.

B. Farm-gate sales: In farm-gate marketing, consumers come directly to the farm to purchase agricultural products. Examples include: Selling milk directly from the farm. Selling fresh vegetables. Selling fruits during the harvest season. Selling eggs or poultry products. This method can reduce transportation and marketing costs because customers come to the farmer.

C. Direct selling through retail outlets: Farmers may establish their own small shops or stalls to sell agricultural products directly to consumers. For example, a dairy farmer may operate a small outlet selling milk, curd, paneer, or other dairy products. This gives the farmer greater control over **pricing, presentation, branding, and customer relationships**.

D. Community-supported agriculture (CSA): Under this model, consumers commit to purchasing agricultural products from a farmer, often by making a payment at the beginning of a season. The farmer then supplies products periodically. For example, consumers may subscribe to receive a weekly box containing: Vegetables, Fruits, Egg, Herbs, Other farm products. This provides farmers with a more predictable market and gives consumers regular access to fresh produce.

E. Direct marketing through online platforms: Modern farmers increasingly use **digital marketing** to reach consumers. They may use: Farm websites, Social media, Messaging applications, Online marketplaces, Digital payment systems, Online ordering and delivery services. For example, a farmer can post pictures of freshly harvested vegetables online, receive orders from customers, collect digital payments, and deliver the products locally. This can greatly expand the farmer's market beyond people living immediately around the farm.

F. Direct sales to restaurants, hotels, and institutions: Farmers can establish direct relationships with: Restaurants, Hotels, Schools, Hospitals, Canteens, Food processors, Retail stores. For example, a vegetable farmer may supply lettuce, tomatoes, and herbs directly to a restaurant every morning. This can provide a **regular market**, although buyers may require consistent quality, quantity, packaging, and delivery schedules.

G. Pick-your-own farms: In this approach, consumers visit the farm and harvest the products themselves. It is commonly used for fruits and certain vegetables. For example, consumers may visit a fruit farm and pick strawberries, apples, or other fruits themselves. Besides selling the produce, the farmer can earn income from the **farm experience**.

H. Subscription and home-delivery models: Farmers can offer customers regular deliveries. For example: A customer pays for a monthly vegetable subscription and receives a box of fresh vegetables every week. This model can create **repeat customers and relatively predictable demand**.

V. DATA ANALYSIS AND INTERPRETATION:

Pilot Testing and Reliability Analysis:

A pilot study involving 45 farmers was conducted to assess the internal consistency of the seven measurement scales. Cronbach's alpha was calculated separately for each scale. An alpha coefficient of .70 or above was treated as adequate for research use. Corrected item-total correlations were also examined to ensure that every item contributed meaningfully to its intended construct.

Pilot-Study Reliability of the Measurement Scales (n = 45)

Construct	Items	No. of items	Cronbach's alpha	Corrected item-total correlation	Assessment
Access to credit	B1-B7	7	0.871	0.584-0.746	Good
Challenges faced by farmers	C1-C7	7	0.875	0.557-0.719	Good
Government scheme awareness and participation	D1-D7	7	0.865	0.590-0.704	Good
Adoption of agri-business practices	E1-E7	7	0.859	0.544-0.723	Good
Farm performance	F1-F7	7	0.850	0.543-0.688	Good
Awareness of foreign market opportunities	G1-G7	7	0.873	0.502-0.734	Good
Export readiness and willingness	H1-H7	7	0.880	0.595-0.756	Good

Source: Pilot survey data analysed using SPSS.

As shown in Table 4.1, Cronbach's alpha ranged from .850 for farm performance to .880 for export readiness and willingness. All seven coefficients exceeded .80, demonstrating good internal consistency. Corrected item-total correlations ranged from .502 to .756 and were all above the conventional minimum of .30. Although removal of G4 would have increased the foreign-awareness alpha only marginally from .873 to .874, its corrected item-total correlation was acceptable (.502), and the negligible gain did not justify item deletion. Accordingly, all 49 items were retained for the main survey.

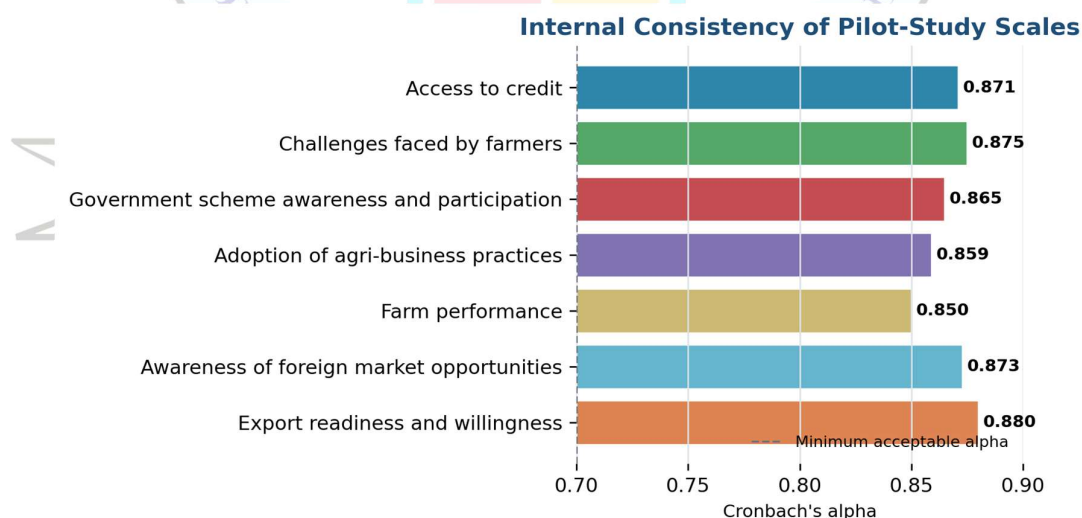


Figure 5.1: Cronbach's Alpha Coefficients for the Pilot-Study Scales

Source: Primary survey data analysed using SPSS (n = 388).

Figure 5.1 confirms that the reliability coefficients formed a narrow and consistently strong band. None of the scales approached the minimum acceptable threshold, and the small differences between coefficients do not indicate a weakness in any construct. The following scale-wise analysis examines item means, corrected item-total correlations, and the alpha coefficient that would result if each item were deleted.

5.3.1 Reliability of Access to Credit:

Table 5.4: Pilot Item Analysis for Access to Credit (n = 45)

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted
B1	Formal credit facilities are easily available for farmers in my area.	3.36	0.857	0.704	0.845
B2	I am able to obtain credit when required for farming or agri-business activities.	3.24	0.830	0.616	0.857
B3	The loan procedure for agricultural and agri-business purposes is simple and understandable.	3.40	0.751	0.746	0.842
B4	The interest rate on agricultural or agri-business loans is affordable.	3.27	0.809	0.690	0.848
B5	The repayment period of agricultural loans is suitable for farmers.	3.47	0.894	0.584	0.863
B6	Credit support helps farmers invest in agri-business practices.	3.42	0.812	0.602	0.859
B7	Access to credit encourages farmers to adopt new agri-business activities.	3.42	0.839	0.615	0.857

Source: Pilot survey data analysed using SPSS.

The access to credit scale achieved Cronbach's alpha = 0.871, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.584 to 0.746; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.842 to 0.863. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item B3 showed the strongest corrected item-total relationship ($r = 0.746$), while item B5 showed the lowest ($r = 0.584$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.2 Reliability of Challenges Faced by Farmers:**Table 4.5: Pilot Item Analysis for Challenges Faced by Farmers (n = 45)**

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted
C1	Lack of capital is a major challenge in adopting agri-business practices.	3.67	0.769	0.557	0.869
C2	Inadequate transport facilities create difficulties in marketing farm products.	3.69	0.733	0.719	0.849
C3	Lack of storage facilities affects the successful adoption of agri-business activities.	3.78	0.823	0.663	0.856
C4	Price fluctuations create uncertainty for farmers engaged in agri-business.	3.71	0.787	0.646	0.858
C5	Lack of technical knowledge limits the adoption of agri-business practices.	3.76	0.830	0.708	0.849
C6	Natural calamities such as drought, heavy rainfall, and climate change affect agri-business activities.	3.82	0.747	0.658	0.856
C7	Lack of proper market information creates difficulty in expanding agri-business practices.	3.76	0.830	0.637	0.859

Source: Pilot survey data analysed using SPSS.

The challenges faced by farmers scale achieved Cronbach's alpha = 0.875, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.557 to 0.719; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.849 to 0.869. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item C2 showed the strongest corrected item-total relationship ($r = 0.719$), while item C1 showed the lowest ($r = 0.557$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.3 Reliability of Government Scheme Awareness and Participation:

Table 4.6: Pilot Item Analysis for Government Scheme Awareness and Participation (n = 45)

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted
D1	I am aware of government schemes related to agriculture and agri-business.	3.09	0.874	0.681	0.839
D2	Government schemes provide useful support for adopting agri-business practices.	3.24	0.802	0.704	0.836
D3	I have received information about government schemes from officials, institutions, or media.	3.24	0.857	0.612	0.849
D4	The procedure for availing government schemes is clear and understandable.	3.33	0.853	0.638	0.845
D5	Subsidies and financial assistance encourage farmers to adopt agri-business practices.	3.20	0.869	0.607	0.849
D6	Training and guidance under government schemes help farmers improve agri-business activities.	3.24	0.830	0.590	0.852
D7	Participation in government schemes improves farmers' confidence in adopting agri-business practices.	3.27	0.751	0.622	0.848

Source: Pilot survey data analysed using SPSS.

The government scheme awareness and participation scale achieved Cronbach's alpha = 0.865, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.590 to 0.704; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.836 to 0.852. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item D2 showed the strongest corrected item-total relationship ($r = 0.704$), while item D6 showed the lowest ($r = 0.590$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.4 Reliability of Adoption of Agri-Business Practices:

Table 4.7: Pilot Item Analysis for Adoption of Agri-Business Practices (n = 45)

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted
E1	I have adopted agri-business practices to improve my farming activities.	3.47	0.757	0.723	0.826
E2	I use value addition practices such as grading, packaging, processing, or branding of farm products.	3.47	0.726	0.660	0.835
E3	I use improved marketing methods for selling agricultural products.	3.29	0.815	0.596	0.844
E4	I have adopted activities such as dairy processing, floriculture, agritourism, or other agri-business practices.	3.49	0.757	0.593	0.844
E5	I invest money, time, or resources in improving agri-business activities.	3.51	0.843	0.649	0.836
E6	I use modern methods, technology, or improved practices in farming and agri-business.	3.49	0.815	0.544	0.851
E7	I am willing to continue or expand agri-business practices in the future.	3.49	0.787	0.628	0.839

Source: Pilot survey data analysed using SPSS.

The adoption of agri-business practices scale achieved Cronbach's alpha = 0.859, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.544 to 0.723; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.826 to 0.851. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item E1 showed the strongest corrected item-total relationship ($r = 0.723$), while item E6 showed the lowest ($r = 0.544$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.5 Reliability of Farm Performance:

Table 4.8: Pilot Item Analysis for Farm Performance (n = 45)

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted
F1	Agri-business practices have improved the productivity of my farm.	3.53	0.786	0.543	0.839
F2	Agri-business practices have helped increase my farm income.	3.44	0.785	0.584	0.833
F3	Agri-business practices have improved the quality of my farm products.	3.36	0.802	0.685	0.818
F4	Agri-business practices have helped reduce wastage or post-harvest losses.	3.47	0.842	0.595	0.832
F5	Agri-business practices have improved my access to better markets.	3.42	0.753	0.622	0.828
F6	Agri-business practices have helped me earn better prices for my products.	3.60	0.809	0.688	0.817
F7	Overall, agri-business practices have improved my farm performance.	3.51	0.787	0.554	0.837

Source: Pilot survey data analysed using SPSS.

The farm performance scale achieved Cronbach's alpha = 0.850, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.543 to 0.688; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.817 to 0.839. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item F6 showed the strongest corrected item-total relationship ($r = 0.688$), while item F1 showed the lowest ($r = 0.543$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.6 Reliability of Awareness of Foreign Market Opportunities:

Table 4.9: Pilot Item Analysis for Awareness of Foreign Market Opportunities (n = 45)

Item	Questionnaire statement	Mean	SD	Corrected item-total correlation	Alpha if item deleted

G1	I am aware that agricultural and agri-business products can have demand in foreign markets.	3.13	0.869	0.644	0.856
G2	I know that some products from Pune district may have export potential.	3.09	0.949	0.734	0.844
G3	I am aware of the quality standards required for selling products in foreign markets.	3.16	0.878	0.686	0.851
G4	I am aware of packaging and labeling requirements for export-oriented products.	2.98	0.839	0.502	0.874
G5	I am aware of certifications required for export-oriented agri-business products.	3.16	0.952	0.628	0.859
G6	I know that government agencies and institutions provide support for agricultural exports.	3.02	0.866	0.669	0.853
G7	I am aware that farmer groups, cooperatives, or FPOs can help farmers access foreign markets.	3.04	0.903	0.703	0.849

Source: Pilot survey data analysed using SPSS.

The awareness of foreign market opportunities scale achieved Cronbach's alpha = 0.873, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.502 to 0.734; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.844 to 0.874. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item G2 showed the strongest corrected item-total relationship ($r = 0.734$), while item G4 showed the lowest ($r = 0.502$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

5.3.7 Reliability of Export Readiness and Willingness:

Table 4.10: Pilot Item Analysis for Export Readiness and Willingness (n = 45)

Ite m	Questionnaire statement	Mea n	SD	Corrected item-total correlation	Alpha if item deleted
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H1	I am willing to engage in export-oriented agri-business activities in the future.	3.42	0.839	0.665	0.863
H2	I am willing to improve the quality of my products to meet foreign market requirements.	3.27	0.863	0.619	0.869
H3	I am willing to adopt better packaging and grading practices for export purposes.	3.36	0.857	0.698	0.858
H4	I am willing to obtain certification if required for foreign market access.	3.38	0.886	0.756	0.850
H5	I am willing to participate in training programmes related to export-oriented agri-business.	3.42	0.783	0.595	0.871
H6	I am willing to work with farmer producer organizations, cooperatives, or agencies for export activities.	3.33	0.853	0.676	0.861
H7	I am interested in expanding my agri-business activities toward wider national or international markets.	3.27	0.863	0.642	0.866

Source: Pilot survey data analysed using SPSS.

The export readiness and willingness scale achieved Cronbach's alpha = 0.880, demonstrating good internal consistency. Corrected item-total correlations ranged from 0.595 to 0.756; therefore, each item showed an adequate relationship with the total score formed by the remaining items. The 'alpha if item deleted' coefficients ranged from 0.850 to 0.871. This pattern shows that deleting an item would not produce a substantively meaningful improvement in reliability.

Item H4 showed the strongest corrected item-total relationship ($r = 0.756$), while item H5 showed the lowest ($r = 0.595$). Even the lowest coefficient remained above .50, which is well above the minimum criterion used for item retention. The seven-item form was therefore retained unchanged for the main study.

VI. CONCLUSION:

Pilot testing with 45 respondents established good internal consistency for all seven scales, with Cronbach's alpha coefficients ranging from .850 to .880. The main sample was predominantly male, middle-aged, experienced in farming, and concentrated among marginal and small landholders. Direct marketing and value addition were prominent agri-business activities, and most respondents had

operated their activities for more than one year.

The findings are expected to reveal how crucial accessible credit and government support are for overcoming operational challenges. Ultimately, the study seeks to generate actionable policy recommendations to boost agribusiness profitability and resilience in the Pune region.

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