**A Study on Marketing Efficiency and Constraints faced by the Horse Gram growers in Krishnagiri district, Tamil Nadu, India**

**Abstract:**

The aim of the study is to examine and analyse the marketing efficiency and constraints faced by the horse gram growers in Krishnagiri district of Tamil Nadu. Value addition involves improving the quality, marketability and economic worth of a crop. It focusses on assessing marketability to identify added value across various channels in the study region among the sample respondents. It is used to identify the farmers share in consumer rupee, investigate the degree of intermediate exploitation within each channel and to know the problems faced by the farmers at the time of marketing. Primary data for the year 2023-24 were collected from 60 farmers and 30 intermediates were interviewed using pre-tested interview schedule. The results revealed that among the different channels, channel 4 incurs high marketing cost and margin compared to other channels. The producer share in consumer rupee and marketing efficiency was highest in channel 1 followed by channel 2 and lowest in channel 4, it indicates role of intermediates is more in channel 4 and the major constraints faced by the growers at the time of marketing is transport cost and market information.

***Keywords:*** *Horse gram, Marketing cost, Marketing margin, Marketing Efficiency, Garrett ranking technique.*

**Introduction:**

Horse gram, often referred to as the "poor man's pulse crop", is renowned for its resilience among leguminous plants. Originating from the old world tropics, it is believed to have been domesticated in India and is extensively farmed in regions like Karnataka, Tamil Nadu and Andhra Pradesh. Although primarily grown as a low-grade pulse crop in Southern Asia, spanning from India to Myanmar, it also serves as fodder for livestock and green manure in tropical countries, particularly in South-East Asia. In Tropical Africa, horse gram is found in the wild or naturalized.

Its medicinal qualities, which include astringent, diuretic and antioxidant properties, render it beneficial in addressing various health concerns such as diarrhoea, haemorrhage and haemorrhoids. Moreover, it contributes to lowering cholesterol levels and easing menstrual problems, leucorrhoea and pregnancy-related bleeding. Horse gram is highly regarded for its medicinal applications, with different parts of the plant utilized in treating ailments such as heart disease, asthma, bronchitis, urinary discharges and kidney stones. (Ghani, 2003). Regular consumption of horse gram aids in expelling worm infections, regulating digestion and alleviating acidity and flatulence. (Zhang *et al.*, 2008). Notably, its high non-digestible carbohydrate content results in lower glucose release into the bloodstream, offering potential benefits in managing diabetes. It is recognized as a prebiotic, this resistant starch contributes to the evolving understanding of dietary fibres among newer generations. (Samanta *et al.,* 2011). Moreover, the abundant dietary fibre in horse gram flours contributes to maintaining intestinal and colon health, in addition to various homeostatic and therapeutic functions in human nutrition. (Sreerama *et al.,* 2012).

Based on primary data, it's evident that horse gram is a major pulse crop cultivated by farmers in the study area. Predominant challenges include poverty and existing debts among farmers, prompting them to sell their produce at reduced prices in local markets. Additionally, the proximity to forested areas presents a challenge, with elephants and wild pigs causing significant damage to fields, resulting in substantial losses and growers facing many obstacles in marketing their produce.

Hence, there is a need to conduct a study on horse gram in Krishnagiri District, focusing on examining marketing efficiency and identifying constraints in selling the crop with the following specific objectives: 1. To compare and analyse price spreads and marketing efficiency across various channels of horse gram distribution. 2. To analyse the constraints faced by producers in the marketing of horse gram.

**Methodology:**

**Selection of study area and sampling:**

A multi-stage random sampling method was conducted to select sample farmers. Krishnagiri district, renowned for its horse gram cultivation in Tamil Nadu, was chosen as the study area. Denkanikottai taluk was selected based on its area, ranking first among other taluks. Four villages were purposefully selected due to the highest area under horse gram cultivation within Denkanikottai taluk. From each of these villages, 15 farmers were chosen, sum of 60 sample respondents. Additionally, a total of 30 intermediaries from both local and Salem markets were randomly selected for inclusion in the study.

**Tools and Techniques of Data collection:**

A well-structured and pre-tested interview schedule was used to collect primary data. The interview schedule for farmers covered details on marketing of horse gram including marketing channel used and problems faced during marketing. The interview schedule for intermediaries covered aspects such as cost incurred and profit realized by different market functionaries.

**Marketing channels,** (Pelton, D et al., 2002) whether direct or indirect, involve the movement of products, either directly from the producer to the consumer or through intermediaries. The selection of these channels can greatly influence product availability, accessibility and ultimately, consumer satisfaction. Marketing channel for similar pulse crop marketing (Kumar R R et al., 2022)

**Price spread:** It refers to the gap between what the consumer pays for a product and what the farmer receives for producing it. This difference covers the costs involved in various marketing activities and the profits earned by different parties involved in selling the product (Sangamesh Angadi, Patil BL, 2019; Nirpal R.S et al., 2020; Vikas, S.S et al., 2020).

**Price spread= Producer price –Consumer price**

**Producer’s share in the consumer rupee:** It refers to the portion of the final price paid by the consumer that goes back to the producer. In simpler terms, it signifies how much of the money spent by the consumer actually reaches the producer who created the product. (Kaur P and Kaur, 2019; Nirpal R.S et al., 2020)

**Producer’s share in consumer’s rupee =** $\frac{Net price received by producer}{Price paid by consumer} X 100$

**Marketing efficiency:** It revolves around how effectively marketing agencies can transport goods from the producer to the final consumer while keeping costs low and ensuring maximum benefit for both parties. Acharya’s approach is used to evaluate how well various channels performed in marketing and the following formula is used to figure out how well the market channels were working. (Balaji P et al., 2001; Mohanavannan V et al., 2023)

**Marketing Efficiency =** $\frac{Net Price received by Farmers}{Total Marketing Cost + Total Marketing Margin}$

**Garrett’s ranking technique,** (Garrett and Woodworth, 1969) is used to analyze the constraints in marketing. Each respondent's rankings were converted into percentage positions using a specific formula.

**Percent position =** $100 ×\frac{(Rij - 0.5)}{Nj}$

Where, Rij = rank given to ith constraint by the jth individual and Nj = number of constraints ranked by the jth individual.

The percentage positions calculated earlier were transformed into scores using Garrett’s table. Then, the average score for each factor was determined and arranged from highest to lowest. The constraint with the highest average score was identified as the most significant, followed by others. Major constrains has been faced by the pulses and food crops (Shashikant, V.G et al., 2011; Lakra, Neha et al., 2018; Kumar K et al., 2018; Thombre R.F et al., 2020).

**Results and Discussion:**

**Marketing channels of Horse Gram:**

Based on responses from the sampled participants, the primary marketing channels for whole horse gram grains and roasted dal identified in Krishnagiri district, has been given below in the figure. 1.

**Figure. 1 Marketing channels of Horse Gram in the study area**.

**Local Market**

**Local Market**

**Village Merchant**

**Retailer**

**Retailer**

**Super Market**

**Leigh Bazaar**

**Local Market**

**Local Market**

**Super Market**

**Leigh Bazaar**

**Dal**

***Source:*** *constructed by the author based on primary survey*

**Price spread of Horse Gram in various channels**

In Channel 1, farmers received a net price of Rs 31.75 per kg, making up about 61.06 per cent of the consumer's price. Retailers had higher marketing costs (Rs 1.00 per kg) than the local market (Rs 0.30 per kg), which accounted for 1.92 per cent and 0.58 per cent of the consumer's price, respectively. The local market's marketing margin (Rs 12.70 per kg) was also higher than the retailer's (Rs 6.00 per kg), representing 24.42 per cent and 11.54 per cent of the consumer's price.

**Table 1: Price Spread of various Marketing channels in Horse Gram (Rs/kg)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Particulars** | **Channel 1** | **Channel 2** | **Channel 3** | **Channel 4 (Dal)** |
| 1. | Net price received by farmer | 31.75 (61.06) | 30.00 (57.69) | 31.75 (48.85) | 31.75 (31.75) |
| 2. | cost incurred the farmer | 0.25 (0.48) | - | 0.25 (0.38) | 0.25 (0.25) |
| 3. | Selling price of farmer  | 32.00 (61.54) | 30.00 (57.69) | 32.00 (49.23) | 32.00 (32.00) |
| 4. | Purchase price of Village Merchant | - | 30.00 (57.69) | - | - |
| 5. | Cost incurred by Village Merchant | - | 0.40 (0.77) | - | - |
| 6. | Margin of Village Merchant | - | 4.60 (8.85) | - | - |
| 7. | Selling price of Village Merchant | - | 35.00 (67.31) | - | - |
| 8. | Purchase price of local market | 32.00 (61.54) | 35.00 (67.31) | 32.00 (49.23) | 32.00 (32.00) |
| 9. | Cost incurred by Local market | 0.30 (0.58) | 0.30 (0.58) | 0.70 (1.07) | 0.70 (0.70) |
| 10. | Margin of local market | 12.70 (24.42) | 9.70 (18.65) | 10.30 (15.85) | 10.30 (10.30) |
| 11. | Selling price of local market | 45.00 (86.54) | 45.00 (86.54) | 43.00 (66.15) | 43.00 (43.00) |
| 12. | Purchase price of retailer | 45.00 (86.54) | 45.00 (86.54) | - | - |
| 13. | Cost incurred by retailer | 1.00 (1.92) | 1.00 (1.92) | - | - |
| 14. | Margin of retailer | 6.00 (11.54) | 6.00 (11.54) | - | - |
| 15. | Selling price of retailer | 52.00 (100.00) | 52.00 (100.00) | - | - |
| 16. | Purchase price of leigh bazar | - | - | 43.00 (66.15) | 43.00 (43.00) |
| 17. | Cost incurred by leigh bazar | - | - | 0.30 (0.46) | 0.30 (0.30) |
| 18. | Margin of leigh bazar | - | - | 6.70 (10.31) | 6.70 (6.70) |
| 19. | Selling price of leigh bazar | - | - | 50.00 (76.92) | 50.00 (50.00) |
| 20. | Purchase price of super market | - | - | 50.00 (76.92) | 50.00 (50.00) |
| 21. | Cost incurred by super market | - | - | 2.10 (3.23) | 14.10 (14.10) |
| 22. | Margin of super market | - | - | 12.90 (19.85) | 35.90 (35.90) |
| 23. | Selling price of super market  | - | - | 65.00 (100.00) | 100.00 (100.00) |
| 24. | **Purchase price of consumer** |  **52.00 (100.00)** | **52.00 (100.00)** | **65.00 (100.00)** | **100.00 (100.00)** |

***Source:*** *computed by the author based on primary survey.*

 *Figures in parenthesis are the percentage to the total of the column.*

Whereas in Channel 2, farmers received Rs 30 per kg, which was about 57.69 per cent of the consumer's price. Retailers again incurred higher marketing costs (Rs 1.00 per kg) compared to the village merchant (Rs 0.40 per kg) and the local market (Rs 0.30 per kg), accounting for 1.92 per cent, 0.77 per cent and 0.58 per cent of the consumer's price. The local market's marketing margin (Rs 9.70 per kg) was also higher than the retailer's (Rs 6.00 per kg) and the village merchant's (Rs 4.60 per kg), making up 18.65 per cent, 11.54 per cent and 8.85 per cent of the consumer's price respectively.

In Channel 3, farmers received a net price of Rs 31.75 per kg, which made up about 48.85 per cent of the consumer's price. The super market had the highest marketing costs (Rs 2.10 per kg), compared to the local market (Rs 0.70 per kg) and leigh bazaar (Rs 0.30 per kg). These costs accounted for 3.23 per cent, 1.07 per cent, and 0.46 per cent of the consumer’s price respectively. The super market also had a higher marketing margin (Rs 12.90 per kg) compared to the local market (Rs 10.30 per kg) and leigh bazaar (Rs 6.70 per kg), making up 19.84 per cent, 15.85 per cent, and 10.31 per cent of the consumer's price.

However in Channel 4, farmers still received Rs 31.75 per kg, but this accounted for only 31.75 per cent of the consumer’s price. The super market’s marketing costs were much higher (Rs 14.10 per kg) than the local market (Rs 0.70 per kg) and leigh bazaar (Rs 0.30 per kg), representing 14.10 per cent, 0.70 per cent and 0.30 per cent of the consumer's price. The super market’s marketing margin (Rs 35.90 per kg) was also much higher compared to the local market (Rs 10.30 per kg) and leigh bazaar (Rs 6.70 per kg), accounting for 35.90 per cent, 10.30 per cent and 6.70 per cent of the consumer’s price.

**Variation in Price spread among different channels of Horse Gram:**

Table 2 clearly shows the consolidated statement of price spread. Excluding the second channel, the price received by the farmer was consistent across the other three channels. Channel 4 incurred the highest marketing costs and margins, due to its broader distribution network, packaging, branding, and the processing of whole grain into broken roasted dal, the super market's larger operational scale results in elevated costs compared to the local markets and leigh bazaar, followed by Channel 3. Channel 1 had the lowest costs and margins. The producer's share of the consumer's rupee was greatest in Channel 1, followed by Channel 2, and smallest in Channel 4.

**Table 2: Consolidated statement of Price spread across various marketing channels of Horse Gram**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Particulars** | **Channel 1** | **Channel 2** | **Channel 3** | **Channel 4** |
| 1. | Farmer’s net price (Rs/kg) | 31.75 | 30.00 | 31.75 | 31.75 |
| 2. | Total Marketing costs (Rs/kg) | 1.55 | 1.70 | 3.35 | 15.35 |
| 3. | Total Marketing margin (Rs/kg) | 18.70 | 20.30 | 29.90 | 52.90 |
| 4. | Value addition in chain (TMC + TMM) (Rs/kg) | 20.25 | 22.00 | 33.25 | 68.25 |
| 5. | Consumer price (Rs/kg) | 52.00 | 52.00 | 65.00 | 100.00 |
| 6. | Producer’s share in consumer rupee (per cent) | 61.06 | 57.69 | 48.84 | 31.75 |

***Source:*** *computed by the author based on primary survey*

**Acharya’s approach of Marketing Efficiency:**

Acharya's approach serves as an ideal measure of marketing efficiency, especially for comparing the efficiency of different horse gram market channels. In this study, marketing efficiency was analysed by examining marketing costs, marketing margins, and the farmers' net prices. A higher index indicates a more efficient marketing chain. The analysis results showed that marketing efficiency was highest in Channel 1, followed by Channels 2, 3, and 4. Thus, it can be inferred that Channel 1 is the most profitable for farmers. This is presented in table 3.

**Table 3: Acharya’s approach of Marketing Efficiency of Horse Gram**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Particulars** | **Channel 1** | **Channel 2** | **Channel 3** | **Channel 4** |
| 1. | Farmer’s net price (Rs/kg) | 31.75 | 30 | 31.75 | 31.75 |
| 2. | Total Marketing costs (Rs/kg) | 1.55 | 1.70 | 3.35 | 15.35 |
| 3. | Total Marketing margin (Rs/kg) | 18.70 | 20.30 | 29.90 | 52.90 |
| 4. | Acharya’s approach of Marketing Efficiency | 1.56 | 1.36 | 0.95 | 0.47 |

***Source:*** *computed by the author based on primary survey*

**Constraints faced by the farmers during marketing:**

From the Table 4, it was indicated that high transportation costs were ranked as the most important constraint by horse gram farmers, with the highest mean score. This was followed by a lack of market information and low market demand, which were ranked second and third. Additionally, price fluctuations and middlemen influence were ranked fourth and fifth. Inconsistent quality and inadequate government support were ranked sixth and seventh, were some other minor problems noted by horse gram farmers in the study area.

**Table 4: Problems encountered by Horse Gram farmers during marketing**

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Constraints | Garrett Score | Rank |
| 1. | High transportation cost | 66.79 | I |
| 2. | Lack of market information | 60.49 | II |
| 3. | Low market demand | 59.36 | III |
| 4. | Price fluctuation | 55.16 | IV |
| 5. | Middleman influence | 50.93 | V |
| 6. | Inconsistent quality | 44.46 | VI |
| 7. | Poor government support | 40.09 | VII |

***Source:*** *computed by the author based on primary survey*

**Conclusion:**

The study highlights that local market earn more profit than producers and other intermediaries. These problems could be addressed only if the activities of local markets are curtailed. One among the effective ways in limiting the activities of intermediaries might be announcement of advisory prices by the government authorities. Farmers face challenges like high transport costs, limited market information and demand for other crops. To overcome this, the government should encourage horse gram cultivation as a primary crop and ensure fair pricing. Additionally, establishing markets closer to farmers would help reduce transportation costs and support better market access.

**Disclaimer (Artificial intelligence)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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