

PERCEPTIONS OF MAIZE PRODUCERS REGARDING CULTIVATIONAL PRACTICES AND MARKETING PROBLEMS IN TEHSIL DEPALPUR DISTRICT OKARA, PUNJAB, PAKISTAN

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Maize is one of the oldest cultivated crops of Pakistan. The climatic and soil conditions of Pakistan are ideal to produce maize. In Pakistan, maize is cultivated on an area of 950,000 ha with standard grain yield of 3671 kg per ha and a yearly production of 4270 thousand tons, which is less as compared to other maize growing countries of the world. When the farmers implement the latest cultural methods, maximum yield of maize is possible because of sowing resistant hybrid seed timely use of pesticides and fertilizers and proper irrigation. To analyze these practices and marketing problems of the farmers, research was conducted in tehsil Depalpur district Okara by selecting 120 maize growers randomly. Ten union councils were selected from tehsil Depalpur having two villages in each union council and six farmers in each village; thus, making a total of 120 respondents. The results indicate that most of the farmers have their source of income mainly from agriculture including livestock. About half of the respondents were loan processing and more than half of the respondents were financially medium because unavailability of subsidies and expensive prices of electricity bills of tub well, pesticides and fertilizers. The maize farmers used the hybrid seed for better production. The market access was easy because of better road infrastructure of the farmers adopted the latest cultural methods for the cultivation of maize. The respondents used both tube-well and canal water for irrigation. The government should provide subsidy on agricultural products and should reduce the prices of electricity. Loan facilities should be provided to maize growers at low-interest rate. Prices of fertilizers, pesticides and the hybrid seed should be below. Agricultural information sources must play a role in providing up to date and valid information to farmers. The government should replace traditional practices with modern agricultural production practices. Transport facilities should be provided to farmers to easily access to the agricultural market.

Keywords: *Zea mays*, cultivation practices, production technology, financial problems, agricultural subsidy, agricultural marketing.

INTRODUCTION

Maize lies at third position among cereal crops all over the world with an overall area of more than 118 million hectares yielding about 600 million metric tons' annual production. Whereas, in Pakistan's maize ranks at 4th position after wheat, cotton and rice. It has a share of 0.5% in GDP and 2.4% in agriculture while occupies an area over 1.2 million hectares with annual production of 5.7 million tons (GOP, 2016). Maize crop serves as a major income generation source in developing or underdeveloped world (Tagne *et al.*, 2008). Most importantly, maize has substantial role and use in the making of various products i.e. glucose, maize oil, corn peel, starch, gluten, breakfast cereals, poultry feed etc. Its flour is used for making chapattis or flatbreads in Indo-Pak (Younis *et*

al., 2016). It is important to use suitable technologies by small growers to increase maize productivity who frequently require more food. The use of better maize seeds is an example of these technological innovations. However, the implementation of this type of seed in developing countries is still meager (Tanveer *et al.*, 2014). Increasing agricultural productivity is critical to meet expected increasing demand and, as such, it is instructive to examine current performance in cases of new agricultural technologies (Rong *et al.*, 2013). The most familiar areas of technology enlargement and encouragement for crops comprise new varieties and management regimes; soil as well as soil richness management, weed and pest management, irrigation and water management (Loevinsohn *et al.*, 2013). Straight tillage influences bulk density, soil porosity, penetration conflict and

moisture contented (Khurshid *et al.*, 2006). The conformist and management tillage methods extensively control yield and yield method of crops with conventional tillage method recording significantly higher yield compared to no-tillage (Rashidi *et al.*, 2010). The land preparation method that incorporate organic matter into the soil increases ventilation through burrowing and breakdown activities of soil organisms (MacRobert *et al.*, 2007).

Annual trouble and pulverization of soil through harrowing and ploughing produce a greater and loose soil structure compared to conservation or no-tillage methods, which depart soil integral (Rashidi *et al.*, 2008). In case of thin population, yield per unit area reduced because of less than optimum plants, while in case of the plantation of thick population, most of the plants bear barren cobs, smaller ears and become vulnerable to lodging and pest attack (Ahmad *et al.*, 2010). Major constraints on crop production are due to limited water resources (Liu *et al.*, 2009).

The maize yield is on decreasing verge as total maize production was 6.134 million tons during 2016-17 and the reason is over-dependency of farmers on traditional agricultural practices and producing mainly for subsistence (INEGI, 2015). Farmers had moderate knowledge about maize cultivation requirements and postharvest techniques such as drying and shelling and its market opportunities as dry maize fetches a higher price than raw maize, but farmers did not know how to reduce its moisture content to an optimal level (Hart *et al.*, 2006). The marketing constraints faced by maize growers of Karnataka (India) indicated that 91.67 percent of growers apprehend that fluctuation within the market costs are their main issue in marketing of maize followed by high transport cost (83.33%) and the excessive charges (75.00%), commission agent fee (66.67%), poor advisement procedures (61.67%), remote market places (51.67%), delayed money receiving from traders (50.00%) (Kumar *et al.*, 2015).

The purpose of meeting maize growers is to select farmers and ask them to identify the problems and perceptions of maize producers regarding the cultural practices and marketing problems faced by farmers in tehsil Depalpur.

MATERIALS AND METHODS

The place of the study was tehsil Depalpur of Punjab province that has 35 union councils with 851 registered maize growers. Ten union councils were selected from tehsil Depalpur which have 175 registered maize growers, and in each union council selected two villages and in each village selected six farmers; thus, making a total of 120 respondents. The farmers were interviewed personally at their homes or farms. The questionnaire was designed in English, but the questions were administered in local language for the convenience of interviewees to get the required information with maximum

accuracy. The Statistical Package for Social Sciences (SPSS) was used to analyze the research data.

RESULTS AND DISCUSSION

Demographic distribution of the respondents is presented in Table 1. The Table 1 indicates that 34.2% respondents were of the age of 31-40 years, 29.2% were of 41-50 years, 20.8% were of 20-30 years and left of the 15.8% respondents were more than 50 years of age. Education level indicates that 33.3% of the respondents were illiterate, followed by 22% who were educated at elementary level whereas 20% respondents attained primary education. Higher secondary educated respondents fall in 14.2% category. Married farmers were 83.3%. Ahmad (2010) also reported that 88% of the respondents were married and 12% were single. Agriculture plus livestock was the main source of income of the respondents (54.2%). The dependency of farmers solely on agriculture and livestock was 14.2% and 0.8%, respectively, while remaining 30.8% farmers income was through business and agriculture plus livestock.

Table 1. Demographic distribution of the respondents (n=120).

A) Age of the respondents	(f)	(%)
20-30	25	20.8
31-40	41	34.2
41-50	35	29.2
50+	19	15.8
B) Education level		
Illiterate	40	33.3
Primary	24	20.0
Elementary	27	22.5
Secondary	10	8.3
Higher Secondary	17	14.2
Any other	2	1.7
C) Marital status		
Married	100	83.3
Single	20	15.8
D) Source of income		
Agriculture	17	14.2
Livestock	1	0.8
Agriculture + Livestock	65	54.2
All	37	30.8
E) Land holding in acres		
1-5	14	11.7
6-10	38	31.7
11-16	38	31.7
16+	30	25.0
F) Tenancy status		
Owner	79	65.8
Tenant	6	5.0
Both	35	29.2

Table 2. Distribution of the respondents according to the adoption rate of latest cultivation practices (n=120).

Cultivation practices	f	%	Weighted score	Mean	S.D.	Ranked order
Hybrid seeds	120	100.0	528.0	4.4	0.7	1
Seed rate	120	100.0	482.0	4.0	0.8	2
New varieties	118	98.3	481.0	4.0	0.9	3
Canal irrigation	115	95.5	476.0	3.9	0.9	4
Cleaning of Land	118	98.3	473.0	3.9	1.0	5
Ridging	120	100.0	462.0	3.8	1.0	6
Use of labor	114	95.0	461.0	3.8	1.3	7
Choice of site	114	95.0	453.0	3.7	1.1	8
Use of new technologies	119	99.2	446.0	3.7	0.7	9
Ploughing	120	100.0	445.0	3.7	0.9	10
Stumping	112	93.3	419.0	3.4	1.3	11
Mechanical method	107	89.2	417.0	3.4	1.4	12
Tube well irrigation	96	80.0	395.0	3.2	1.8	13
Use of chemicals	108	90.0	394.0	3.2	1.3	14
Resistant seed	83	89.2	307.0	2.5	1.8	15
Old varieties	94	78.3	293.0	2.4	1.4	16
Manuring	65	54.2	216.0	1.8	1.9	17

Table 3. Distribution of the respondents regarding the marketing access (n=120).

Information	f	%	Weighted score	Mean	S.D.	Ranked order
Farm to market access	119	99.2	495.0	4.1	4.6	1
Link roads connect to market	110	91.7	438.0	3.6	1.4	2
Agricultural equipment	110	91.7	419.0	3.4	1.2	3
Unavailability of vehicles	112	93.3	414.0	3.4	1.3	4
Lack of information resources	110	91.7	400.0	3.3	1.2	5
Roads condition	110	91.7	398.0	3.3	1.2	6
Information on prices	65	54.1	392.0	3.2	1.5	7
Middleman biasness	103	17.0	381.0	3.1	1.5	8

Size of the land holding varied in the studied area. Most of the growers (31-7%) had small-medium (6-10 acres) to medium (11-16 acres) land holding. There were 25% respondents with 16 acres or more. The tenancy status of the farmers indicated that 65.8% of the respondents were owner of land. Further, 29.2% of the farmers under study were owner plus tenants and only 5% of the respondents fell in tenant category.

The adoption rate of latest cultivation practices by the respondents is presented in Table 2. The respondent's response about adoption rate for hybrid seeds ranked 1st with weighted score and mean value 528.0 and 4.4, respectively. The 2nd, 3rd, 4th and 5th ranks were occupied by seed rate, new varieties, canal irrigation and clearing of land with weighted score 482, 481, 476 and 473 with the mean value of 4.0, 4.0, 3.9 and 3.9 in that order. Whereas ridging, use of labor, choice of site, use of new technologies and ploughing were ranked 6th, 7th, 8th, 9th and 10th with the weighted score of 462, 461, 453, 446 and 445, respectively. The ranking order 16, 17, occupied by old varieties and manuring with weighted score of 293 and 216, respectively.

The data in Table 3 indicates that market access to farm by respondents was ranked 1st with a weighted score of 495.

While respondent's response about link road connection to market, agriculture equipment, unavailability of vehicles and lack of information resources were ranked in 2nd, 3rd, 4th and 5th with a weighted score of 438, 419, 414 and 400, respectively. The respondents admitted for easy farm to market access availability, ownership of agricultural equipment's and sharing agricultural equipment's to other farmers. Whereas, the respondents ranked unfavorable roads at 6th with a weighted of score 398. They were in view that the road condition is good and easy access to market. The data in Table 3 explain the information about prices of agricultural products which ranked 7th with a weighted score of 392; however, the middleman biasness ranked at 8th position with weighted score of 381.

Conclusion: Tehsil Depalpur has a great potential of maize production. The current study examined the perception of maize producers regarding cultivation and marketing problems. The result concluded that majority of the farmers had their source of income mainly from agriculture plus livestock. More than half of the respondents were financially medium because unavailability of subsidy and high prices of

electricity for tube-well irrigation, pesticides and fertilizers. The maize farmers of tehsil Depalpur use hybrid seeds for good production. The market access is easy because roads condition is good. The farmers adopted latest cultivation practices for maize. It is recommended that government may provide subsidy on agricultural inputs and reduce the prices of electricity. Loan facilities may be provided at low interest rate to maize growers.

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