

## **Analysis of Problem and Prospects of Pineapple (Ananas comosus) Production in Delta state, Nigeria.**

### **Abstract**

Pineapple is a delicious tropical fruit with a fine flavor and high nutritive value. It is one of the most important commercial fruits crop in the world. Despite its popularity there are no enough data on the problems and delta state in particular. Multi stage sampling techniques was used to obtain relevant information from some pineapple farmers from one agricultural zone in delta state. Data collected were analyzed using descriptive statistics such as frequency distribution, percentages and mean. The result indicates that majority (47%) of farmer are within middle age with a mean of 45.2. The average period of experience in pineapple farming was 12.8years. The result also revealed that most of the farmers are located far from their residence (78.3%), while majority (50%) of the pineapple farmers cultivated local variety of pineapple. Respondents attested to the fact that there are high prospects for prospective pineapple investors and exiting farmers in the area. The identified potentials include; boosting of income ( $\bar{x}=2.78$ ), promote good health through consumption among farmers ( $\bar{x}=2.62$ ) and check social vice as a result of idleness ( $\bar{x}=1.840$ ) among others. The major identified problem of pineapple production of the farmers includes; lack of improved planting materials high fruit perishabilty, low fruit price e.tc. The study recommends that government should established cold storage facilities to reduce fruit perishability, make available improved varieties of pineapple to farmers and easier access to loan from government and NGO to increase yield of pineapple

## 28    **1.0 Introduction**

29    Pineapple is the most economically plant by most family. It belong to the family  
30    bromediodeae. It is known as the queen of fruits because of his excellent flavor  
31    and taste. Pineapple contribute over 20% of its world production of topical  
32    fruits (Coveca, 2002). Pineapple is a wonderful flavor and immense health  
33    benefit (joy,2010). According to Ubi et al,(2005), the pineapple plant are  
34    drought tolerant and well adapted to the topical sandy soil with PH ranging  
35    from 4.5 to 6.5. the plant are popagated from suckers or from the crown which  
36    grow on top of the fruit. it is one of the most important commercial fruit crops  
37    in the world available throughout the year. Pineapple production in 2011  
38    constituted more than 19 million metric tonnes.

39    Production of pineapple in Nigeria accounted for 1.4 metric tonnes in  
40    2011(about 7% of the World production) which place it in the seventh position  
41    (FAOSTAT, 2013). It is grown for eaten both for the fresh and processed  
42    products which make it an important food (FAOSTAT, 2009). In developing  
43    country like Nigeria, particularly in delta state most fresh pineapple produced  
44    are sold in domestic markets and bought for domestic consumption (Spore  
45    Magazine, 2008). Moreso, the fruit juice market in Nigeria has witnessed a  
46    tremendous growth since 2002 (Manufacturing today 2011). Belvyna Global  
47    Nigeria limited (2018) disclosed that Nigeria is the largest producer of fresh  
48    pineapple on the African continent. The report further presented in a table the  
49    quantity of metric tonnes of fruits produce in three different countries as shown  
50    below;

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|    |            |         |         |              |
|----|------------|---------|---------|--------------|
| 55 | Crops      | Nigeria | Kenya   | South Africa |
| 56 | Pineapple  | 920,000 | 371,310 | 108,636      |
| 57 | Mangoes    | 795,000 | 636,585 | 52,318       |
| 58 | Watermelon | 139,223 | 66,196  | 77,993       |

59 The report further posited that pineapple is more popular due to its sweet sour  
60 taste containing 15% sugar, malic and citric fruit acids.

61 Belvyna Global Nigeria limited (2018) stated that pineapple is high in  
62 vitamin B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub> and C. Pineapple contain protein digesting enzyme called  
63 bromelain that help in digesting at the end of a heavy protein meal(Nwosu,  
64 2011). Pineapple leaves can be used in three forms; dried and in silage  
65 (Geocoppens, 2001). Centrifuge sludge left over from juice production may be  
66 used as pork feed (FAO, 2004), while fruit core is used in preparing candy.  
67 Pineapple is used as ornamentals symbolizing welcome, high living and  
68 opulence

## 69 **1.1 Problem Statement**

70 Until recently, about 80% of pineapple produced in Nigeria from small  
71 scale farms that were managed under mixed cropping system. Access to  
72 international markets, enhanced value of fresh fruits, resuscitation of  
73 pineapple cultivation and local processing have recently encouraged the  
74 development of few large scale farms where pineapple is produced as a  
75 mono crop (Adesope et al, 2009 and Kochhar (2006).

76 Despite Nigeria position and potential in pineapple production in  
77 the World and the enormous economic advantage the country derive from  
78 the crop; Nigeria has the lowest productivity of about 7 tonnes per hectare  
79 when compared with the other nine top producers in the World. Nigeria

has only a small share of 5% in the World wide pineapple production (FAOSTAT, 2010 and Mark, 2010). In other words the Nigeria pineapple production is low and inadequate to meet the increasing demand in the country (Mark, 2010). This study was designed to examine the problems and prospects of pineapple production with a view to increasing pineapple productivity in Delta state.

## 1.2 Objective of the Study

The general objective of the study therefore is to examine the problems and prospects of pineapple production in delta state, Nigeria.

Specifically, the study objectives are as follows;

- 1 identify the social-economic characteristics of pineapple farmers in the study area
- 2 ascertain the pineapple production practices in the study area
- 3 identify the potentials for pineapple production in the study area
- 4 ascertain the constraints of pineapple farmers in the study area

## 2.0 Methodology

### 2.1 Area of Study

The study was restricted to three (3) local government areas (L.G.A) of delta state, namely Isoko North, Isoko South and Ughelli South. The study focused on all the pineapple farmers in the study area. The study area experiences two seasons; the rainy season which last from April – October and the dry season from November to March. The annual temperature varies between 27<sup>0</sup>c and 37<sup>0</sup>c with relative humidity of between 70<sup>0</sup>c and 80<sup>0</sup>c in July/August. The soil in the study area is predominantly clay-loam in texture. The major crops produced in the area include pineapple, cassava, pepper, plantain and maize etc.

## 2.2 Method of Data Collection

Primary and secondary data were used for this study. The primary data were collected by means of structured questionnaire and interview schedules administered to sixty four (64) knowledgeable pineapple farmers in the chosen communities with the assistance of the Block Extension Supervisor (BES) and Extension Agents (EA) attached to the three selected local government area. On the other hand, the secondary data were obtained from relevant publications.

Relevant information extracted from farmers includes; socio economic characteristics of the pineapple producers, pineapple production practices i.e. variety of pineapple grown, source of planting material, cropping pattern adopted, method of land preparation, problems and prospect of pineapple production. Sixty (60) questionnaire were retrieved from the farmers and four (4) were not returned.

## 2.3 Sampling Techniques

A multi- stage sampling technique was adopted to select the study area and sample size. Firstly one agricultural zone- delta central was randomly selected out of the three (3) agriculture zone in Delta State i.e delta south, delta central and delta north. Secondly, three (3) LGA- Isoko north, Isoko South and Ughelli South were purposively selected from delta central out of eight (8) local government that makes up the zone due to the existence of high population of pineapple producers in the chosen LGA. Thirdly, three communities were purposively sampled from each LGA to give a total of nine (9) communities. The communities include Ozoro, Owhelogbo, Iyede, Oleh, Aviara, Emede, Otujeremi, Ewhu and Ekakpreme

Finally, eight (8) pineapple farmers were sampled purposively from each selected communities. A total of 64 respondents based on popularity and their level of involvement in the pineapple production were interview

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## 2.4 Analytical Techniques

The data collected were presented and analyzed using descriptive statistics such as frequency distribution, percentages and mean.

## 3.0 Results and Discussion

### 3.1 Socio Economic Characteristics of the Pineapple Farmers

Table 1 revealed that pineapple production enterprise is dominated with male farmers. The predominance of male farmers in the study area can be attributed to the labour intensive nature of pineapple farming while can be tedious and time consuming especially for female who have to combine farming activities with their domestic duties another reason for male dominance is the belief that women in the area are not to farmlands. This finding is to corroboration of the work of Baruwa (2013) and Effiong (2005). Majority (77.5%) of the pineapple farmer were 41 years and above. This shows that respondents were ageing. The mean age of respondent was 45.2years. This means that effort should be geared towards encouraging youths into pineapple production. This is because aged farmers are often not amenable to change and not likely to adopt improved technologies nor have the desired physical strength to do manual work as the youth (Nwaru, 2004 ), Ajibifun and Adernole, 2003). Moreso, the result table one also revealed that majority (65%) of the respondents were married with a high proportion (60%) of the farmers household size of 1-5person with mean of 6 persons. Nwaru (2004) asserted that household size is expected to enhance labour availability. On the contrary, Okike (2000) opined that the use of available family labour on small sized farms will result in over iodization and hence inefficiency. The larger the farm household size the more likely the farmer labour will be available to enhance the practice of various improved pineapple technologies . Furthermore, a higher

proportion (46.7%) of the pineapple farmers have no formal education. This implies that 53.3% of the respondents were literate.

Table1 revealed that majority (48.3%) of the respondents have farming experience between 1-5years, while the remaining 51.7% of the respondents has experience between 6-15years. The mean farming experience of the respondents was 12.8years. The result shows that there is relative high farming expensive in pineapple production in study area. This implies that the pineapple farmers in the study area have sufficient experience in the pineapple farming. This finding is in agreement with the finding of Effiong (2005) who reported that the average farming experience of pineapple farmers in Osun state was 13.5years.

With regards to the respondents household income, the result showed that majority (55%) of the respondents annual income was between ₦100,000 to ₦150,000 annually, while the means annual income from pineapple production was ₦70,958.33 and monthly income was ₦5,913.19.

Moreso, table 1 revealed that all the farmers (100%) interviewed agreed that they are into pineapple farming the result also showed that the pineapple producers source their capital from personal savings and they affirmed that they have difficulty getting the desired finance to expand their production level.

200 Table 1: Distribution of socio economic characteristics of 60 pineapple farmers

| Characteristics                   | Frequency | Percentage (%) |
|-----------------------------------|-----------|----------------|
| <b>Age (years)</b>                |           |                |
| 21-30                             | 6         | 10.0           |
| 31-40                             | 8         | 12.5           |
| 41-50                             | 28        | 47.0           |
| 51 and above                      | 18        | 30.5           |
| Total                             | 60        | 100            |
| <b>Sex(gender)</b>                |           |                |
| Male                              | 32        | 54             |
| Female                            | 28        | 46             |
| Total                             | 60        | 100            |
| <b>Marital status</b>             |           |                |
| Single                            | 5         | 8.3            |
| Married                           | 39        | 65             |
| Widowed                           | 10        | 16.7           |
| Divorced                          | 6         | 10             |
|                                   | 60        | 100            |
| <b>Educational level</b>          |           |                |
| On formal education               | 28        | 46.7           |
| Primary education                 | 10        | 16.7           |
| Secondary education               | 14        | 23.3           |
| Tertiary education                | 8         | 13.3           |
|                                   | 60        | 100            |
| <b>Farming experience (years)</b> |           |                |
| 1-10                              | 29        | 48.3           |
| 11-20                             | 18        | 30             |
| 21-30                             | 13        | 21.7           |
|                                   | 60        | 100            |
| <b>Household size (persons)</b>   |           |                |
| 1-5                               | 36        | 60             |
| 6-10                              | 18        | 30             |
| 11 and above                      | 6         | 10             |
|                                   | 60        | 100            |

|                           |     |      |
|---------------------------|-----|------|
| <b>Annual income(₦)</b>   |     |      |
| No response               | 5   | 8.3  |
| 5,000-50,000              | 15  | 25   |
| 51,000-100,000            | 23  | 55   |
| 101,000-150,000           | 16  | 10   |
| 151,000-200,000           | Nil | -    |
| 201,000 & above           | 1   | 1.7  |
|                           | 60  | 100  |
| <b>Mode of farming</b>    |     |      |
| Fulltime                  | 11  | 18.3 |
| Part time                 | 49  | 81.7 |
|                           | 60  | 100  |
| <b>Sources of finance</b> |     |      |
| Personal savings          | 36  | 60   |
| Loan                      | 6   | 10   |
| Inheritance               | 18  | 30   |
|                           | 60  | 100  |

201 Source: Field survey, 2017/2018 cropping season

## 202 **3.2 Pineapple Production Practices**

### 203 3.2.1 Production location

204 Table 2 shows that majority (78.3%) of the pineapple farmers has  
 205 their pineapple production farm located far from their home, while  
 206 21.7% of the farmer planted their pineapple in nearby farmlands.  
 207 This implies that there will be an increase in the cost of  
 208 transportation of pineapple from the point of production to the  
 209 market simply because most of the farmer's pineapple farms are  
 210 sited far from their residence. It will also probably result in  
 211 consumers paying higher to purchase pineapple. It will also mean  
 212 that the pineapple farmer may find it difficult to maintain their  
 213 farm land in terms of weeding as well as rodent control. Often a

time, there could be resultant losses and damage of produce during transportation due to poor road.

### 3.2.3 Variety of pineapple grown

The result in the table 2 revealed that majority (50%) of the pineapple farmers cultivated local variety, while 40% and 10% cultivated improved variety and both improved and local variety respectively. That result implies that a high proportion of pineapple farmers may become low, thereby affecting their source of income. This could discourage farmers in the area from go into pineapple production.

### 3.2.4 Cropping Pattern high

Table 2 revealed a high proportion (70%) of the pineapple farmer practiced mixed cropping, while the remaining 30% are into sole cropping. Iwuchukwu et al., 2017 reported that mixed cropping offers the farmers insurance against total crop failure this practice helps to control soil erosion and weeds. Moreso, it also result in better distribution of farm labour that sole cropping, mixed cropping is used traditionally by peasant farmers to avert risk so as to diversify their production (Iwuchukwu et al., 2017). Type of fertilizer

Entries in table 2 revealed that most (50%) of the principle farmers do not make use of fertilizer in their pineapple farm, while the remaining (50%) of the respondent used either organic or inorganic and both organic and inorganic. The implication of this is that when the farmers apply suitable fertilizer in their farmlands that are not fertile good yield will be recorded.

### 3.2.4 Method of weed control

Table 2 revealed that majority (70%) of pineapple farmers controlled their weed using manual weeding, 20% of the farmers result to chemical weeding and none make of hand picking. This implies that most farmers adopt manual weeding, which often result in intensive use of labour that constitute heavy task. The finding shows that their production is purely organic and environmental friendly and their produce are usually healthy for consumption.

### 3.2.5 Method of trapping rodents

Table 2 revealed that high proportion of the respondents(50%) make use of trap to control rodents, while 35.0% and 15% make use of scare crows and chemical respectively to control rodents . the result show that pineapple farmers usually suffer losses due to rodent attacks since their farmlands and surrounded by thick bushes and located from their residences

### 3.2.6 Methods of harvesting

Result in table 2 shows that all (100%) the pineapple farmers harvested their produce manually. This implies that the farmers are constrained by the absence of basic equipment and this affects their scale of production.

265 Table 2: distribution of farmers based on pineapple production practices.

| Variables                         | Frequency | Percentage (%) |
|-----------------------------------|-----------|----------------|
| <b>Production location</b>        |           |                |
| Farm located far from residence   | 47        | 78.3           |
| Nearby farm                       | 13        | 21.7           |
| Within the residence              | Nil       | --             |
| Total                             | 60        | 100            |
| <b>Variety of pineapple</b>       |           |                |
| improved                          | 24        | 40             |
| local (indigenous)                | 30        | 50             |
| Both improved and local           | 6         | 10             |
|                                   | 60        | 100            |
| <b>Cropping pattern</b>           |           |                |
| Sore                              | 42        | 30             |
| Mixed                             | 18        | 70             |
|                                   | 60        | 100            |
| <b>Types of fertilizer used</b>   |           |                |
| Organic                           | 9         | 15             |
| Inorganic                         | 15        | 25             |
| Both organic and inorganic        | 6         | 10             |
| None                              | 30        | 50             |
|                                   | 60        | 100            |
| <b>Method of weed control</b>     |           |                |
| Use of chemical                   | 12        | 20             |
| Manual weeding                    | 48        | 80             |
| Hand picking                      | -         | -              |
|                                   | 60        | 100            |
| <b>Method of trapping rodents</b> |           |                |
| Use of scare crows                | 21        | 35             |
| Use of traps                      | 30        | 50             |
| Use of chemical                   | 9         | 15             |
|                                   | 60        | 100            |
| <b>Method of harvesting</b>       |           |                |
| Manually                          | Nil       | --             |
| Mechanically                      | 60        | 100            |

266 Source; field survey, 2017/2018 cropping season

### 3.3 Constraints to Pineapple Production

Table 3 shows the problems militating against the effective production of pineapple in the study area and ranked in descending order of severity. According to the perception to the pineapple farmer as indicated in table 3 the prevalent problems identified include; lack of improved planting material, high fruit perishability, low fruit price, high cost of labour, lack of access to credits, insufficient land, rodent attack, weather and diseases, lack of processing and storage facilities and high cost of transportation.

The finding the study revealed that lack of improved planting materials is identified to be major (83.3%) constraint in the pineapple production in the study area. This result is in the agreement with the research of Kayitesi (2011) that reported that shortage of quality planting materials affect small scale pineapple growing in Ngoma district of Rwanda. The lack of improved planting materials has often result to low productivity because the local variety used for planting by majority of the farmers does not give enough yield. A high quality planting materials enable high yield in production.

Data contained in table 3 revealed that 73.3% of farmers complained on perishability of the pineapple fruit. This result is in conformity with the finding of Amao et al .(2011) who stated that perishable nature of pineapple fruit is the major constrained to pineapple trade in selected markets of Osun state, Nigeria. High fruit perishability is ranked second among the factors militating against pineapple production.

Table 3 reveals that majority (55%) of the respondents attested that low fruit price of pineapple product is one of the

constraints of pineapple production. The study revealed that the producers share in consumer price is very low due to market intermediaries. This result is in conformity with the finding of Baruwa (2013) who reported that producers share in consumer price is quite very low due to unnecessary market intermediaries. Furthermore, the result shows that 46.7% of the respondents mentioned that high cost of labour is a problem. It is the 5<sup>th</sup> identified problems affecting pineapple farmers. Available labour in the area is competed for by agricultural activities or non agricultural activities, thereby reducing the labour required to maintain the pineapple farms. The cost of engaging labour in the farm to cultivate and maintain new pineapple farm is quite high.

Table 3 shows that lack of access to credit facilities is the 6<sup>th</sup> most serious constrains to pineapple farmers. 43.3% of the farmers reported that is difficult getting loan from the bank due to the demand for collateral and high interest charge by the banks which the farmers cannot afford. These have resulted in reduction in scale of production due to their inability to acquire better farming implements for pineapple production.

When pineapple farmer lack access to credit, it will be most impossible for them to operate in a commercial and cost effective manner. This finding is in agreement with the report of famogbide (2013).

The study revealed that 36.7% of pineapple farmers complained about the insufficient land. Communal system of land ownership prevailed among farmers in the study area in which an individual ownership of land is through inheritance. Communal ownership of land in Nigeria has been associated with the problems of limited tenure security. Most farmers explained that adequate land is

needed if they are to attain enough yield as growing smaller farms give rise to low yield and inevitable fragmentation of land holding among rural farmers. This finding agrees with Akhilomen et al., (2015).

The harmful effect of rodent attack (30%) was ranked 8<sup>th</sup> constraint that faces pineapple farmer in the area. This closely followed with the problem of rodents.

Farmers reported that rodents such as grasscutters, rabbit and squirrel destroy pineapple products (fruits) in the field because the farms are located far from residence. The next problem is that of weather and diseases. The problem of disease results in losses in pineapple production in the study area. Pineapple disease is often caused by unhealthy planting materials and poor farming practices. Farmers indicated that they are unable to get enough suckers that would plant there prepared farmland for pineapple, hence they collect free and buy pineapple suckers from other farmers which are mostly infected by diseases. Pineapple mealy bug disease was reported to the commonest pineapple disease in the area. Unfavorable weather makes pineapple production to be low, while during favorable weather the yield is usually very high and give room to high profitability in pineapple farming.

Lack of processing and storage facilities was ranked as the 9<sup>th</sup> constraint by 21.7% of the farmers. The mature pineapple fruit cannot be stored for more than 4 to 5 days after harvesting. The farmers must consider injuring the fruits during harvesting and during transporting to major consumption centre there are no processes facilities and cold storage to improve the marketability of fruit. Hence, farmers are forced to sell of their pineapple fruit

cheaply to marketers at very low price. Pineapples are chill-sensitive and should not be stored in the refrigerator.

Finally, high cost of transportation also affects the production of pineapple in the study area. The study revealed that 16.7% of the farmers' interview claimed that because pineapple fruit are heavy they pay huge money to transport them to major consumption centers and in the cities.

The finding shows that pineapple farmers in the area do not have access to qualitative market information system as this is very important to enable them benefit by exporting their produce.

### 3.4 Potentials of pineapple production.

Table 3 revealed the potential for pineapple investors in the study area. The potential for investors of pineapple as shown below in table 3 and their weighted mean in descending order includes; boosting of income ( $\bar{x}=2.78$ ), promote good health through consumption among farmers ( $\bar{x}=2.62$ ) check social vices as a result to idleness ( $\bar{x}=1.84$ ), minimize urban immigration ( $\bar{x}=1.81$ ), local industrialization ( $\bar{x}=1.49$ ) and serve as a foreign exchange earnings ( $\bar{x}=1.30$ ).

Variables with means value of equal to or greater than ( $\geq$ ) 2.00 were found to be significant and capable of influencing investment in pineapple production, while variables with less than  $<2$  were regarded as not significant and do not influence investors in pineapple production in the study area. This finding is in agreement with the research of Iwuchukwu et al (2017). The above result shows that boosting of income with a mean score of ( $\bar{x}=2.78$ ) and good health through consumption ( $\bar{x}=2.62$ ) were find to be significant to potential of pineapple production in the study area among the farmers.

### 3.5 Conclusion and Recommendation

The problems of pineapple production in the study area includes; lack of improved planting materials, high fruit perishability, low fruit price, high cost of labour among others.

The identified prospects of investors in pineapple production in the study area are; boosting of income, promote good health through consumption among farmers, check social vices as a result of idleness and minimize rural urban migration among others. The study recommends as follows,

(1) That government should established cold storages facilities to reduce fruit perishability.

(2) That government should make available improved varieties of pineapple (high yielding) to enhance farmers productivity.

(3) That government should revive the agricultural prices support programmes

(4) That government and NGOs should support pineapple farmers with loan also subsidized cost of production inputs

(5) That government should promote research targeted at improving pineapple production.

Table 3: distribution of respondents based on constraints encountered by pineapple famers (60 respondents)

| Received constraints                   | Number of farmers | Percentage (%) | Ranking         |
|----------------------------------------|-------------------|----------------|-----------------|
| 1. Lack of improved planting materials | 50                | 83.3           | 1 <sup>st</sup> |
|                                        | 44                | 73.3           | 2 <sup>nd</sup> |
| 2. High fruit portability              | 33                | 55             | 3 <sup>rd</sup> |
| 3. Low fruit price                     | 28                | 46.7           | 4 <sup>th</sup> |
| 4. High cost of labour                 | 26                | 43.3           | 5 <sup>th</sup> |

|                                             |    |      |                  |
|---------------------------------------------|----|------|------------------|
| 5. Lack of access to credit                 | 22 | 36.7 | 6 <sup>th</sup>  |
| 6. Insufficient land                        | 18 | 30   | 7 <sup>th</sup>  |
| 7. Rodent attack                            | 15 | 25   | 8 <sup>th</sup>  |
| 8. Weather and diseases                     | 13 | 21.7 | 9 <sup>th</sup>  |
| 9. Lack of processing and storage faculties | 10 | 16.7 | 10 <sup>th</sup> |
| 10.High cost of transportation              |    |      |                  |

400 Source; field survey, 2017/2018 cropping season

401 Table 4: distribution of perception of respondents based on potentials of the  
402 pineapple production

| Perception of farmers on potential of pineapple production | Mean ( $\bar{x}$ ) | Ranking         |
|------------------------------------------------------------|--------------------|-----------------|
| Source/ boasting of income                                 | 2.7                | 1 <sup>st</sup> |
| Promote good health through consumption among farmers      | 2.62               | 2 <sup>nd</sup> |
| Check social vices as a result of idleness                 | 1.84               | 3 <sup>rd</sup> |
| Minimize rural –urban migration                            | 1.81               | 4 <sup>th</sup> |
| Serve as foreign exchange earnings                         | 1.49               | 5 <sup>th</sup> |
| Local industrialization                                    | 1.30               | 6 <sup>th</sup> |

403 Source; field survey, 2017/2018 cropping season

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