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THE CASE OF THRESHERS IN KANZARA VILLAGE

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INTRODUCTION

The availability of human labor in developing coutries
presents many socio-economic implications, mainly in terms of
the design of the appropriate agricultural technologies. In this
way the adaptation and/or generation of new technologies requires
much skill of the agricultural researchers in such areas, because
of the constant trade off existing between the technical or
economic efficiency and social equity in the distributional
effect of the benefits of the new technologies among producers
and/or consumers (1).

Especially in the case of India, the development of
technologies labor intensive is very important because "nearly 80
per cent of its population (586,270,000, (1974)" live in rural
areas and about 70 per cent of the labor force are classified as
agricultural workers. About 62 per cent of agricultural workers
are cultivators. These cultivators not only hire out their own
labor but also employ labor in their farms" (6).

The general purposes of this study were to evaluate
the economic efficiency and the distributional effects of the
benefit with the introduction of threshers in Kanzara Village-
India.

Especifically it is interested to identify (i) how
economic the thresher is for its owner and how to get it when he
hires out it; (ii) how economic is the hiring of the thresher by
the other farmers and (iii) how much human labour is displaced

as a result of the introduction of the threshers and its socio-
economic implications.

METHODOLOGY

The data used in this study were colected in Kanzara
Village as part of the Village Level Study (VLS) of ICRISAT's
Economics Program from 1975 to 1978 (Table 1, 4 and Annex 1). Other
complementary data were taken from the SUBRAHMANYAM & RYAN (6).
The data were collected before and after the introduction of the
threshers in Kanzara Village. The methologies used to reach the
objectives are based on the principles of benefit cost, acording
to PERRIN et alii (4) and FERGUSON (2).

To support this study the following two basic assumptions
were made:

(i) Kanzara Village was considered as a closed and stable
economic system;

(ii) The owner and the hirer of the threshers compute
carefull all cost and benefits the threshers use.

RESULTS AND DISCUSSION

The Efficiency of the Thresher

The average investments and operational costs of the use of the
only two threshers of Kanzara Village are presented in Table 1.

The other components of variable costs as human labor
and bullock power were taken separedt for later specific analysis.

Table 1 - Investments and costs of the thresher use in Kanzara Village.
1976-77.

Investments and costs	Value (Rs)	%
Investments1/		
(1) Power Thresher	3,625	55.4
(2) Electric motor (5HP)	1,900	29.0
(3) Wiring and accessories	913	14.0
(4) Transportation	105	1.6
(5) Total (1) + (2) + (3) + (4)	6,543	100.0
(6) Junk Value	654	10.0
Costs		
A. Annual fixed cost		
(1) Annual depreciation2/ (10% per year)	589	39.2
(2) Annual interest2/ (11% per year)	396	26.4
(3) Total	985	65.6
(4) Average fixed cost (500 hours per year)	1.97	0.1
B. Annual variable cost		
(1) Electricity	344	22.9
(2) Lubrificants	82	5.5
(3) Maintainance and repairs4/	90	6.0
(4) Total	516	34.4
C. Annual total cost of the use of the thresher (A3+B4)	1,501	100.0
D. Hours of thresher use	"500"	-
E. Cost per hour	3	0.2

1/ The values of these investments are average price of the two threshers that there are in Kanzara-one was acquired in 1976 and another in 1977;

2/ With 10 years of useful expected life using the straight line method for depreciation and in the case of the interest was taken 11% of the 1/2 of the addition of the itens (5) + (6) from investments;

3/ The cost of the human labor and bullock power was taken separated for specific analysis later on.

4/ The maintainance and repairs were assumed increasing constantly and taken the value in the fifth year Rs 90. The average maintainance and repairs in the two first years were Rs 70 (First/year) and Rs 75 (Second year).

The main result of Table 1 is the cost per hour of the thresher use Rs 3 - when 500 hours of annual use were taken trying to consider the real situation of Kanzara Village in the period of this study.

Nevertheless below it is presented the behaviour of the fixed cost per hour for different ranges of annual use of the thresher (Table 2 and Figure 1).

This exercise shows that big savings in terms of reduction on average fixed cost per hour are got in the first hundreds hours. At the level of 500 (reality assumed in Table 1) hours per year the owner of the thresher is near of the limit in terms of earnings from the economy scale of the thresher use.

Another aditional considerations is made about the minimum number of quintals or hours per year necessary to become viable to buy a thresher, considering the level of prices of products threshed and the cost itens. Thus was calculated using the break-even-point principle as following model described by Figure 2 and equity following.

Table 3 shows the respective break-even-points for each separated crop in terms of minimum hour numbers necessary or of quintals per year so that it would be viable to buy a thresher. In this way, for example, it would be necessary, at minimum, in the case of local sorghum, a yield of 443.7 Qtls what is equal to 156.2 hours during one year, in order to be viable to buy a thresher since the market condições be kept constant.

The break-even-points of Table 3 when compared to 500 annual hours (on the average) that the two available threshers at Kanzara Village worked each one in 1976 and 1977 make us to conclude that once the price difference per labor hour of the thresher for each crop is not so big (Tabel 5), the owners of the two

Table 2 - Behaviour of the fixed cost per hour for different ranges of annual use of thresher.

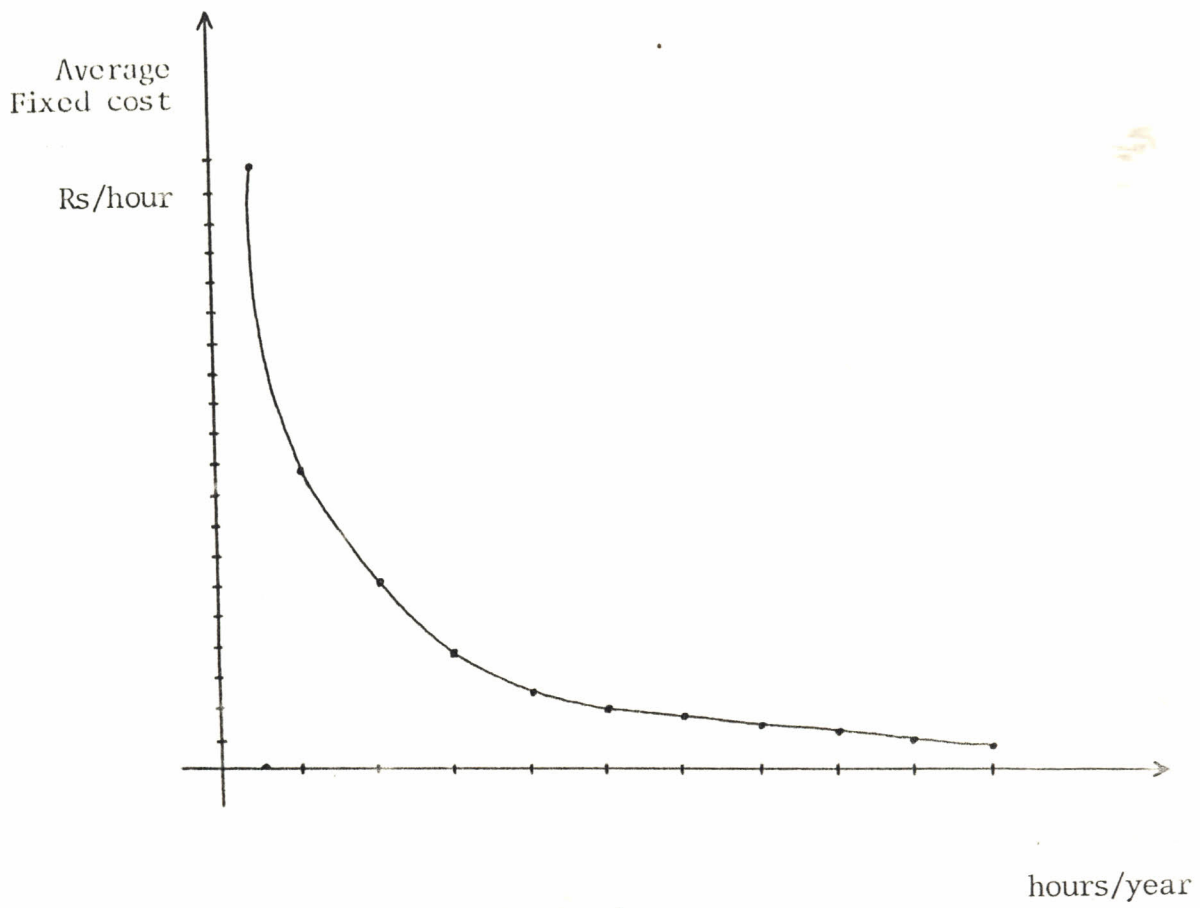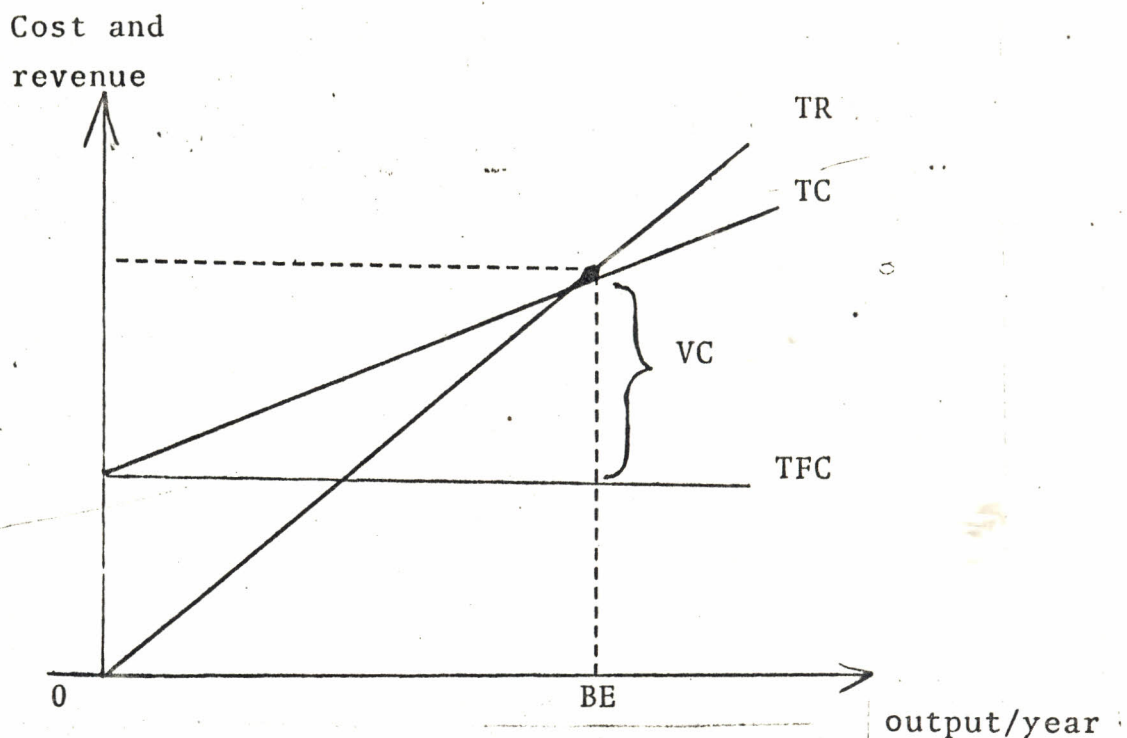| Annual Fixed Cost (Rs) (A)	Annual use in hour (B)	Average Fixed Cost (Rs) (C) = (A):(B)	Marginal increasing $(C_i) - (C_i + 1)$
985	50	19.70	-
985	100	9.85	9.85
985	150	6.57	3.28
985	200	4.13	1.64
985	250	3.94	0.99
985	300	3.28	0.66
985	350	2.81	0.47
985	400	2.46	0.35
985	450	2.19	0.27
985	500	1.97	0.22
985	550	1.79	0.18
985	600	1.64	0.15
985	650	1.52	0.12
985	700	1.41	0.11
985	750	1.31	0.10
985	800	1.23	0.08
985	850	1.16	0.07
985	900	1.09	0.07

Figure 1

Cost and
revenue

Figure 2

$$BE = \frac{TFC}{RPQ - VCPQ}$$

Where:

BE   - break-even-point as Qtls/year;
TFC - total fixed cost;
RPQ - Rupies per quintal of each product threshed;
VCPQ - Variable cost per quintal threshed.

Table 3 - Break-even-point for each crop studied in Kanzara
        Village.

Especification	Crops		
	Sorghum		HYV Wheat
	Local	Hybrid	
Total fixed cost	985	985	985
Revenue per quintal threshed	3.75	3.64	5.19
Variable cost per quintal thresher	1.53	1.86	2.26
Break-even-point (Qtls)	443.7	553.4	335.2
Break-even-point (Hours)	156.2	138.3	181.2

1/ Production from Kanzara Village and outside in 1976.

thresher had operated above the break-even-point, consequently having profits.

The calculus of net monetary benefits per quintal of each crop threshed is presented on Table 5, both for the owners and for the hirers. These data were derived from the basic data on Table 4.

According to Table 4 the profit of the owner of the thresher is around Rs 2.8/Qtl when it is used in his own work, and when he hires out it the profit is between Rs 2.53 and Rs 2.99/Qtl.

The hirer earns Rs 0.59 and Rs 0.17 per Qtl in the case of the local sorghum and hybrid sorghum, respectively. In the case of the HYV wheat there is a cost of Rs 0.44/Qtl exceding the traditional method, and so a disadvantage for the hirer who hired the thresher.

These results show that owner of the thresher earns most of the benefit from threshing, what by the characteristics of the trade when compared to the traditional technology will lead to a concentration of the agricultural income, cetiris paribus, fact undesirable for a country where there is human labour excess, which is the case of India. However, if it is thought to develop a farming system which absorbs the desplaced and already available human labour in the threshing period of the crops studied perhaps it could be possible to utilize the thresher with success (for some considerations see RYAN et alii (5) pp 12-14).

Efects of Thershers on Involuntary Unemployment and its Implications

The data from 1975 and 1976 SUBRAHMANYAM & RYAN (5) estimate the involuntary unemployment (i. u.) by standard fortnight. With these data and the savings in terms of labor

TABLE 4 - Summary of the data collected before and after of introduction of threshers in Kanzara Village

CROP AND PERIOD OF THRESHING	TIME	HUMAN LABOR (Hours/Qlt)								Total Production Qlt	Hours Power Thesher Per Qlt	For Herer — Rs/Hour of Power thesher [3/]	Bullock Power — Hour/ Qlt	Rs/hour Bullock Power [3/]
		FAMALY				HIRED								
		OWNER		HIRED		OWNER		HIRED						
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE					
LOCAL SHORGUM 6/10/75 to 25/01/76	Before(B)	1.83	0.59	1.83	0.59	3.38	0.53	3.38	0.53	284.06 [1/]	0	-	1.44	1.25
	After (A)	0.46	0	0.34	0	0.46	0	0.71	0	441.23 [2/]	0,352	10.66	0	-
	Saving (B-A)	1.37	0.59	1.49	0.59	2.92	0.53	2.67	0.53	-	-0,352	-	1.44	-
	Wages (Rs/hour)[4/]	0.534	0.281	0.534	0.281	0.534	0.281	0.534	0.281	-	-	-	-	-
	Total Saving in hours [5/]	404.4	172.2	439.8	174.2	861.9	156.4	788.1	156.4	-	-	-	-	-
HYBRID SHORGUM 14/10/75 to 29/12/76	Before(B)	1.83	0	1.83	0	4.15	0.41	4.15	0.41	211.29 [1/]	0	-	0.76	1.25
	After(A)	0.32	0	0.30	0	0.32	0	0.78	0	2485.76 [2/]	0.250	14.54	0	-
	Saving(B-A)	1.51	0	1.53	0	3.83	0.41	3.37	0.41	-	0.250	-	0.76	-
	Wages(Rs/hour)[4/]	0.552	0.314	0.552	0.314	0.552	0.314	0.552	0.314	-	-	-	-	-
	Total Saving in hours [5/]	744.9	0	754.8	0	1,889.4	202.3	1,612.5	202.3	-	-	-	-	-
HYV WHEAT 28/02/76 to 01/04/76	Before(B)	2.83	0	2.83	0	1.89	3.15	1.89	3.15	38.10 [1/]	0	-	2.05	1.25
	After(A)	0.66	0	0.45	0	0.66	0	1.01	0.08	1,143.5 [2/]	0.539	9.63	0	-
	Saving(B-A)	2.17	0	2.38	0	1.13	3.15	0.88	3.07	-	-0.539	-	2.05	-
	Wages(Rs/hour)[4/]	0.432	0.253	0.432	0.253	0.432	0.253	0.432	0.253	-	-	-	-	-
	Total Saving in hours [5/]	776.8	0	851.9	0	404.5	0	315.0	1,098.9	-	-	-	-	-

[1/] [2/] [3/] [4/] [5/]   See these footnotes on following page.

Table 4 Annex

1/ These amounts represent the numbers of quintal for each crop for 30 cultivitors that were a sample of farmers of the village level study of ICRISAT, in Kanzara and Kinke-da Village, during 1975;

2/ These amounts were threshing in Kanzara but only 81.23 Qtl of local Shorgum, 135.76 Qtls of Hybrid Shorgum and 98.5 HYV wheat were harvested in Kanzara Village, respectively;

3/ The prices to thresher for hirer were got from the year 1976/77 divided the Rs received by the owner by the number of hours threshe-ed only for thresher number one during 1976/77;

The price of bullock pair per hour was got in the same way as above.

4./ The data of these line were got from SUBRAHMANYAM & RYAN [6] (Pag. 32 - table 7) represent the simple arithimetic mean of the daily wages in the period of threshing for each crop;

5/ The data of these line were got by using the fallowing formula $Tsi = Si \times Xi/sf$, where: $Tsi =$ total savings in hours per each crop in all Kanzara Village during 1976/77 (Agricultural year); $Si =$ savings for each crop in hour per Qtl; $Xi =$ production for 30 cultivators of sample in Kanzara Village as footnote 2 above and $sf =$ sample fraction $= 0.2752$. (taken from JODHA et alii (3)).

(i represents each crop - i = 1, 2 and 3 $\longrightarrow$ 1 = Local Sorghum, 2 = Hybrid Sorghum and 3 = HYV Wheat).

Table 5 - Cost and savings in Rs/Qtl for each crop for owner
and hirer.

Costs and savings in Rs/Qtl	Sorghum		HYV Wheat
	Local	Hybrid	
A. Traditional method			
(1) Labor use			
Family			
Male	0.98	1.01	1.22
Female	0.17	0	0
Hired			
Male	1.80	2.29	0.82
Female	0.15	0.13	0.80
(2) Bullock power	1.80	0.95	2.56
(3) Total	4.90	4.38	5.40
B. Thresher Method (Owner)			
(1) Labor use (Owner)			
-Family of owner			
Male	0.25	0.18	0.29
Female	0	0	0
-Hired			
Male	0.25	0.18	0.29
Female	0	0	0
(2) Thresher power	1.06	0.75	1.62
(3) Total	1.56	1.11	2.20

C. Thresher method (Hirer)

(1) Labor use

  Family

Male	0.18	0.17	0.19
Female	0	0	0

  Hired

Male	0.38	0.40	0.44
Female	0	0	0

(2) Thresher power	3.75	3.64	5.19
(3) Total	4.31	4.21	5.84

D. Savings

(1) Owner (A3)-(B3)+(C1)	2.78	2.70	2.85
(2) Hirer (A3)-(C3)	0.59	0.17	-0.44
(3) Owner when hires out the thresher (C2)-(B3)	2.75	2.53	2.99

caused by introduction of threshers in Kanzara Village (Table 4),
we got an increasing in the level of (i.u.) in the period of this
study (Tabel 6).

By analysis of the Table 6 we can see that in all crops
there is increase in levels of i.u., particularly for the case of
the Hybrid Sorghum and HYV wheat.

Mainly in the case of hired labor the increase of i.u.
is bigger than in the family labor, but in both cases the rate
of i.u. is big in terms of male, except for the case of hired
labor in HYV wheat in wich the rate of i.u. for female is big.

These effects today are bigger than at the time of
collecting the data for this study (1975/78) if we consider
that nearly 95% of the famers are using the machine to thresh
while at that time about 10% minus used the machine.

If we consider that the number the threshers as two owners
and the savings of man power (Table 6) we can conclude that
introduction of threshers promots the concentration of the income
in Kanzara (Table 1 and 3) and increases the involuntary
unemployment.

Taking a study developed by RYAN et alii (5, pp
14/30/31) and comparing the peaks of demand labor found for
Kanzara Village for the time the threshers are utilized it is
noted that if there was, at that time, a deficit in the human
labour supply, the technology of the thresher could be advisable
in terms of economic efficiency even though it could cause a
negative influence in the salary tax and in the employment level.

CONCLUSION

The analysis of the threshers efficiency indicates that
the new technology leads to a reasonable economy of resources like

TABLE 6 - Effect of thresher use on involuntary unemployment in Kanzara Village/1976

Involuntary [1] unemployment and desplecement	LOCAL SORGHUM				HYBRID SORGHUM				HYV WHEAT			
	FAMILY		HIRED		FAMILY		HIRED		FAMILY		HIRED	
	M	F	M	F	M	F	M	F	M	F	M	F
Involuntary unemployment (Before)	1742.0 (100.0)	1902.0 (100.0)	1742.0 (100.0)	1902.0 (100.0)	1056.0 (100.0)	1064.0 (100.0)	1056.0 (100.0)	1064.0 (100.0)	777.0 (100.0)	1098.0 (100.0)	777.0 (100.0)	1098.0 (100.0)
Displacement caused by thresher use	120.6 (6.9)	49.8 (2.6)	235.7 (13.5)	44.7 (2.4)	214.2 (20.3)	0 (0.0)	507.4 (48.1)	57.8 (5.4)	232.6 (29.9)	0 (0.0)	102.8 (13.2)	157.0 (14.3)
Involuntary unemployment (after)	1862.6 (106.9)	1951.8 (102.6)	1977.7 (113.5)	1946.7 (102.4)	1270.2 (120.3)	1064.0 (100.0)	1563.4 (148.1)	1121.8 (105.4)	1009.0 (129.9)	1098.0 (100.0)	879.8 (113.2)	1255.0 (114.3)

1/ In terms of day (seven hours per day).

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human labour and animal power which in the general consideration
leads to net incomes for the threshers' owners as well as for the
hirers. On the other hand, two negative facts come out with the
use of threshers, being the first the economy of available resources
(human labour and animal power) in benefit of the use of scarce
resources, machines like threshers and accessories. The second
negative fact is that the use of threshers leads to a concentration
on income in the rural area when big part of the benefits is held
by few threshers owners.

        The analysis in terms of equity in the distribution of
the benefits from the new technology showed that there was
concetration of income in the rural area and increase in the
involuntary unemployment rate when it was already present even
before the introduction of the new techhology.

        These results lead us to suggest that within the
limitations of this work, two decisions could be taken in order
to alleviate the problems present in this conclusion. The first
would be the discipline of the credit by the government (as it
is noted in Kanzara Village, the government is financing threshers)
for the acquisition of thresher or even for the own factories of these
machines, and the second would be to stimulate the national
research agencies to try to develop a technology which
complements the technology studies, like it has been made at
ICRISAT.

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ANNEX

1. DATA

2. COMPLEMENTARY CALCULATIONS

CROP	THRESHER	YEAR	2/ TIME	PRODUC-TION	PRODUCTION OF 30 FARMS Qtls	FAMILY (Hour)				HIRED (Hour)				BULLOCK POWER Hour
						OWNER		HIRED		OWNER		HIRER		
						MALE	FEMALE	MALE	FEMALE	M	F	M	F	
LOCAL SORGHUM	-	1975	BEFORE	TOTAL	284.06[1]	520	168	520	168	961	151	961	151	408
				Per/Qtl	-	1.83	0.59	1.83	0.59	3.38	0.53	3.38	0.53	1.44
	20.35	1976/77	AFTER	Total	81.23[3]	-	-	27.5	0	-	-	57.5	0	0
				Per/Q	-	-	-	0.34	0	-	-	0.71	0	0
	135	1976/77 1977/78	AFTER	TOTAL	360.[4]	165	0	-	-	165	0	-	-	
				Per/Q	-	0.46	0	-	-	0.46	0	-	-	
			SAVING	TOTAL	-	-	-	-	-	-	-	-	-	
				Per/Q	-	1.37	0.59	1.49	0.59	2.92	0.53	2.67	0.53	1.44
HYBRID SORGHUM	-	1975	BEFORE	TOTAL	211.29[1]	250	0	250	0	876	86	876	86	160
				Per/Q	-	1.83	0	1.83	0	4.15	0.41	4.15	0.41	0.76
	30.35	76/77	AFTER	TOTAL	135.76[3]	-	-	41	0	-	-	105.5	0	0
				Per/Q	-	-	-	0.30	0	-	-	0.78	0	0
	590	76/77 77/78	AFTER	TOTAL	2350[4]	750	0	-	-	750	0	-	-	0
				Per/Q	-	0.32	0	-	-	0.32	0	-	-	0
			SAVING		-	1.51	0	1.53	0	3.83	0.41	3.37	0.41	0.76
HYV WHEAT	-	1975/76	BEFORE	TOTAL	38.10[1]	108	0	108	0	72	120	72	120	78
				Per/Q	-	2.83	0	2.83	0	1.89	3.15	1.89	3.15	2.05
	36.50	1976/77	AFTER	TOTAL	98.50[3]	-	-	44	0	-	-	99	8	0
				Per/Q	-	-	-	0.45	0	-	-	1.01	0.08	0
	580	1977/78	AFTER	TOTAL	1045[4]	685	0	-	-	685	0	-	-	0
				Per/Q	-	0.66	0	-	-	0.66	0	-	-	0
			SAVING	Per/Q	-	2.17	0	2,38	0	1.13	3.15	0.88	3.07	2.05

[1] Total for Kanzara + Kinkeda (see original data);   [3] Only Kanzara Village;

[2] Before and after thresher machine use;   [4] Kanzara + Outside

2. COMPLEMENTARY CALCULATION

CROP	Savings[1]	FAMILY				HIRED BY			
		OWNER		HIRER		OWNER		HIRER	
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
LOCAL SORGHUM	(S_1)1/Saving in hour/ qtl.	1.37	0.59	1.49	0.59	2.92	0.53	2.67	0.53
	(X_1)Total qtl/Kanzara	295.17	295.17	295.17	295.17	295.17	295.17	295.17	295.17
	(TS_1)Total Saving in hours.	404.38	174.15	439.80	174.15	861.90	156.44	788.10	156.44
HYBRID SORGHUM	(S_2)Saving in hour / qtl.	1.51	0	1.53	0	3.83	0.41	3.37	0.41
	(X_2)Total qtl/Kanzara	493.31	493.31	493.31	493.31	493.31	493.31	493.31	493.31
	(TS_2)Total Saving in hours.	744.90	o	754.76	0	1,889.38	202.26	1,662.45	202.26
HYV WHEAT	(S_3)Saving in hour / qtl.	2.17	0	2.38	0	1.31	3.15	0,88	3.07
	(X_3)Total qtl/Kanzara	357.92	357.92	357.92	357.92	357.92	357.92	357.92	357.92
	(TS_3)Total Saving in hours.	776.69	0	851.85	0	404.45	0	314.97	1.098,81

[1] Where : $TSi = Si \times \dfrac{Xi}{Sf}$ and :

i - Each crop studyed;

TSi - Total savings in hours for each crop (i) in Kanzara Village;

Si - Saving in hours per qtl. for each crop;

Xi - Total production of Kanzara;

Sf - Sample fraction = 0,2752

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THE GENERAL DESCRIPTION OF THE INFORMATIONS COLLECTED IN KANZARA VILLAGE

By Mr. Geraldo Magela Calegar

1. Revision of the data sheet with Kshrisagar

   A[1/] The interpretation was the same given by Dr. Ryan. No problem.

2. In 1975/76 did any people hire out thresher for farmers in Kanzara (from outside)?

   In afirmative case how many % of different crops were threshered?

   A. No.

3. In 1976/77 and 1977/78 only two threshers worked in Kanzara without threshers from outside. In this way how many threshers and how many % of each crop were thershed in Kanzara from Kanzara by thresher use?

   A1. In 1976 - only one thresher
       In 1977 - two threshers
       In 1978 - four threshers
       In 1979 - five threshers

   A2[2/]

	1976	Now (1979)
Local Jowar	80%	90%
Hybrid Jowar	90%	97%
HYV wheat	90%	97%

1/ A. = Answer

2/ Estimated "a priori" by Kshirsagar

4. What kind of thresher is there now in Kanzara and wich one is the most preferred by owner and by hirer, and why?

A1. SHERPUS

SAIKO

A2. Sherpus is more preferred by owner because it requires:

(a) - less maintenance and repair

(b) - working capacity (productivity) is higher than SAIKO

A3. The second thresher SAIKO is preferred by hirer because:

(a) the quality of the work is better than the first (clean of the grain, breakage, especial in local jowar).

Note:

(a) These problems don't affect the price of threshing (4% in kind for each crop).

(b) There isn't a strong preference for any type of thresher by hirer.

5. Miscelaneous:

(a) The owners of the threshers are farmers;

(b) The price by the use of the thresher is fixed for any crop (4% of product threshed).

(c) The owner of the thresher expects that the thresher works about 10 years. (life of the thresher);

(d) Maintenance and repairs:

. Who does?

The owner of the thresher.

. Where does he do? (Village or town)

In the Village

. When does he do?

When it is necessary. Not very aften.

. When are they necessary

Few times a year

. What are the most common problems?

It is difficult to thresh when the product is green and it may disregular the equipment.

6. Varieties of the crops threshed in 76/77 and 77/78:

A. Local Jowar	—	DHAMNA	—	76/77/78
Hybrid Jowar	—	CSH-1	—	76/77
HYV wheat	—	S22,7	—	77/78

7. What crop and varieties are more difficult to thresh and why?

A. The difficults are the same for each variety in the case of each crop, but wheat is more difficult because it is put all the plant (grain + straw in the thresher).

8. For each crop identify:

(a) Price of the hour thresher for hirer (in kind or in Rs)?

A. 4% of the production threshed

(b) Differences between the quality of the grain and straw by each different method per crop

A. For local and hybrid sorghum, the straw stays in the field. They put in the machine only the bunch.

. Both local and HYV wheat without machine provide better straw.

(c) What about Glumes and broken seeds when compared two methods for each crop?

A. All the qualities of the grains are better in thresher machine, than in the traditional method.

There are less glumes with machine than traditional method and more breakage with machine than with the traditional method;

(d) What the grain consumer likes more, the product processed by the traditional method or by the thresher? Are the prices different?

A. By thresher; No differences in terms of price.

9. Requirement of labor to clean each crop after threshing with the traditional method and with the threshers-

A. In the case of threshers it needs to clean for each piece of straw but it is not very much.
Almost all human labor used in Traditional method is to clean the seeds after threshing and few labor conduct bullock.

10. Identy the situations below according to the following:

(1) Works only for himself
(2) Works only for others
(3) Works for himself as well as for others

Situations:

(3) The thresher's owner's family (male)
(1) The thresher's owner's family (female)
(3) The thresher's hirer's family (male)
(3) The thresher's hirer's family (female)
(3) Hired labor (male)
(3) Hired labor (female)

11. Is it possible for people who were displaced because of the use of the thresher to get a new job?

. In what ativities? Is it more cammon in what period during the year?

A. Yes; They can get a job.
. Several other activities on the fields;
. Because in general there is a peak of labor demand;

12. What are the differences between thresher nº 1 and nº 2 (1976 and 1977)?

    A. See item 4.

13. Is the price to hire out thresher outside the village same as inside
    (in Kanzara)? Do they use the owner's family outside in the same way
    inside? Why does the owner hire it outside?

   A. The price is 4% in Kind, They work outside after working inside.

    . They use the owner's family in the same way.

    . The owner hires it out because of the few production of Kanzara.

14. Do you feel that the number of unemployed people increased after the
    thresher machine began to be used in Kanzara?

    A. He thinks there was realocation because the peack of demand labor
       during threshering period.

15. How could owner's get money to buy the thresher and in what conditions
    (interests, time and warranties)?

    A. 1st thresher-own money;

       2nd thresher-loan from the bank;

                    . interest - 11%;

                    . pays in 2,5 years in ten equal parcels;

                    . warranties-land;

                    . money - 75% taken from the bank and 10% from the
                      government;

                    . owner money - 15%;

16. What did the owner do before acquiring the thresher and what do they do
    now?

    A. They were farmers and now they continue on the farm;
       The thresher machine is a good business, in getting money;