

RESULTS 1

(*Oreochromis shirranus*)

ON-FARM RESEARCH SECTION

No.	1	2	3	4	5	6	7
Name of farmers	Nali	Chinseu SS	Chinseu SS	Chinseu SS	Chinseu SS	Maundala	Maundala
Area (m <sup>2</sup> )	277	391	256	368	384	175	270
Treatment	feed&manure	feed&manure	feed only	manure only	Nothing	feed only	feed only
Duration of Trial	Feb00-Jul 01	Aug00-Mar01	Aug00-Mar01	Aug00-Mar01	Aug00-Mar01	Jul00-Apr01	Jul00-Apr01
Days	170	213	213	213	213	260	260
Water temperature (°C)	22-29	21-31	21-30	22-31	22-31	24-32	24-32
Initial No. stocked	1695	2810	825	1198	724	1453	2009
No. at harvest	1772	1973	702	772	503	1079	1441
B/A Yield rate (%)	104.5	70.2	85.1	64.4	69.4	74.3	71.7
C Initial total weight (kg)	19.3	25.3	7.4	10.8	6.5	10	14.1
D Final total weight (kg)	101.3	76.9	23.6	23.1	10.4	30.5	35.3
D/C Rate of weight gain (%)	524.9	304	318.9	213.9	160	305	250
E Initial Av bwt size (g)	11.4	9	9	9	9	7	7
F Final Av bwt size (g)	57.2	39	33.5	29.9	20.7	28.3	24.5
F/E Rate of individual wt gain (%)	501.8	433.3	372.2	332.2	230	404.3	350
G Stocking density (No./m <sup>2</sup> )	6.1	7.2	3.2	3.3	1.9	8.3	7.4
H No. harvest/m <sup>2</sup> (No./m <sup>2</sup> )	6.4	5	2.7	2.1	1.3	6.2	5.3
I Stocking weight(total)/m <sup>2</sup> (g)	69.7	64.7	28.9	29.3	16.9	57.1	52.2
J Harvested total weight/m <sup>2</sup> (g)	365.7	196.7	92.2	62.8	27.1	174.3	130.7
K Total feed weight (kg)	281	1252	408	0	0	286	339
D-C/K Feed conversion rate (%)	29.2	4.1	4	-	-	3.5	6.3
Remarks	pond lined with concrete feed was ground to fine poeder					constant water loss by seepage	constant water loss by seepage
Fry Production No.	525	582	5564	8440	220	2021	1597
Av. Weight of fry produced (g)	4	6.2-9.4	3.7-5.9	3.7-5.7	3.5-8.8	2.8-3.4	2.8-4.8

No	9	10	11	12
Name	Chidothi W.Gr.	Chidothi W.Gr.	Chidothi W.Gr.	Chidothi W.Gr.
Area (m <sup>2</sup> )	124	171	113	190
Treatment	manure & little feed	manure & little feed	manure & little feed	manure & little feed
SALES				
Table fish	5.5kg*60Kw=330	9.8kg*60Kw=588	4.5kg*60Kw=270	14.9kg*60Kw=894
Total (A)	330	588	270	894
COST				
Seed	609*1.3Kw=791.7	995*1.3Kw=1293.5	641*1.3Kw=833.3	969*1.3Kw=1259.7
Feed	50kg*2Kw=100	50kg*2Kw=100	58kg*2Kw=116	58kg*2Kw=116
Manure	80kg*0.8Kw=64	160kg*0.8Kw=128	140kg*0.8Kw=112	160kg*0.8Kw=128
Total (B)	955.7	1521.5	1061.3	1503.7
Profit (A-B)	-625.7	-933.5	-791.3	-609.7
Remarks				

No	13	14
Name	Chidothi W.Gr.	Malemusi
Area (m <sup>2</sup> )	160	180
Treatment	manure & little feed	feed only
SALES		
Table fish	9.1kg*60Kw=546	5.4kg*60Kw=324
Total (A)	546	324
COST		
Seed	812*1.3Kw=1055.6	1288*1.3Kw=1677.4
Feed	58kg*2Kw=116	217kg*2Kw=434.0
Manure	190kg*0.8Kw=152	0
Total (B)	1323.6	2111.4
Profit (A-B)	-776.6	-1787.4
Remarks		

Simple Income and Expenditure Analysis  
(*Oreochromis shiranus*)

No	1	2	3	4
Name	Nali farm	Chinseu SS	Chinseu SS	Chinseu SS
Area (m <sup>2</sup> )	227	391	256	368
Treatment	feed & manure	feed & manure	feed only	manure only
SALES				
Table fish	101.3kg*80Kw=8104.0	76.9kg*60Kw=4614.0	23.6kg*60Kw=1416.0	23.1kg*60Kw=1386.0
Total (A)	8104	4614	1416	1386
COST				
Seed	1695*1.5Kw=2542.5	2810*1Kw=2810	825*1Kw= 825	1198*1Kw=1198
Feed	281.0* 1.8Kw=505.8	500kg*2Kw=1000	175kg*2Kw=350	
Manure	96Kw, 1064Kw	320kg*0.8Kw=256		320kg*0.8Kw=256
Total (B)	4208.3	4066	1175	1454
Profit (A-B)	3895.7	548	241	-68
Remarks				

No	5	6	7	8
Name	Chinseu SS	Maundala	Maundala	Chidothi W.Gr.
Area (m <sup>2</sup> )	384	175	270	221
Treatment	nothing	feed only	feed only	manure & little feed
SALES				
Table fish	10.4kg*60Kw=624	30.5kg*70Kw=2135.0	35.3kg*70Kw=2471.0	18.7kg*60Kw=1122.0
Total (A)	624	2135	2471	1122
COST				
Seed	724*1Kw=724	1453*1Kw=1453	2009*1Kw=2009.0	1120*1.3Kw=1456.0
Feed		286kg*2Kw=572	339kg*2Kw=678.0	50kg*2Kw=100
Manure		0	0	150kg*0.8Kw=120.0
Total (B)	724	2025	2687	1676
Profit (A-B)	-100	110	-216	-554
Remarks				

*Tilapia rendalli* growth has not been very good may be due to the feeding habits. *T. rendalli* is a macrophagous feeder but in these trials nothing was provided as supplementary feed. However, *O. shiranus* performed better under the same culture conditions.

Catfish (*Clarius gariepinus*) was stocked in two ponds at Women club (15 in each pond). Despite the pond depth and big size of pond, we only harvested 1 catfish. In cases like this, the suitability of catfish in smallscale poorly managed ponds is questionable.

In the previous trials at NAC productivity only was considered. In these trials profit and loss will be determined.

Social economic status of each farm will be studied to determine what scale of operation is suitable for each farm condition.

## Results From the Trials

### *Oreochromis shiranus*

The best growth of *O. shiranus* was obtained at Nali farm in Thyolo which is owned by a company, Nali limited. The yield rate (Table fish and fingerlings) was 104% while in the other farms it was below 100% (85, 74, 71, 70, etc.) the lowest being 12 % at Malimusi. The final total weight of the fish harvested was highest at Nali 101Kg than in the same treatment at Chinseu (76Kg) than in all other farms with the same treatment. The culture period was even shorter than the same treatment conducted. The rate of weight gain was likewise the same: greatest at Nali (524%) and lowest at Malimusi (28%).

These good results at Nali could be attributed to the quality of feed at Nali which was ground into fine particle before feeding. Most of the feed here was consumed by both the small and big fish. And the particle size in the other farm is larger and all the feed may not be consumed. The management of Nali is also quite good and the fish were fed daily unlike other farm where they could not fed daily. In other farms i.e. Malimusi and Women Club the survival rate was very low due to theft and dyke breakage resulting into loss of fish.

Harvested total weight per unit area was also highest ( $365\text{g/m}^2$ ) at Nali, followed by Chinseu with  $196\text{g/m}^2$  and lowest at Malimusi with  $30\text{g/m}^2$ .

In general, smallscale poor farmers had very poor results. Chidothi women Club and Malimusi had poor results. These results could be as a result of very low survival rate. Ponds at Chidothi flooded during the trial period and they lost fish. Fish at Malimusi escaped into the river when dyke was broken due to flooding after heavy rain.

On the simple income and expenditure Analysis, the return to costs is positive in Nali farm, Chinseu station and Maundala Salimu but negative in all other farms.

### Other Species

*Labeo Cylindricus* trial has shown that the growth rate is high than expected. The final total weight was similar to that for *O. shiranus* under feed only at Chinseu (25 and 23 respectively). The harvested total weight per unit area was  $92\text{g/m}^2$  for *shiranus* and  $64\text{g/m}^2$  for *L. mesops*.



26<sup>th</sup> Sept, 2001

## ON- FARM RESEARCH

### PROGRESS REPORT

#### Introduction

On-Farm Research section started operating in April, 2001. The purpose is to verify techniques developed at NAC at selected fish farms.

#### Activities

- Selection of farms/ farmers for on- farm research
- Selection of appropriate mode of fish farming for each selected farm
- Implementation of on-farm research

#### First Trials

The first trials were set in Zomba West (Chinseu area). This area identified because of the willingness of the farmers to cooperate in research work, the roads were fairly good in all weather conditions and is few kilometers drive from NAC. Ponds in this area are also perennial so risk of drying up within a trial period is minimal.

#### Treatments

Four treatments were recommended and set:

1. Feed (maize bran) and manure (chicken manure)
2. Feed only
3. Manure only
4. No feed no manure

#### Targets

Farmers: Small scale farmers  
Government satellite stations

Species: *Oreochromis shiranus* is the main specie  
*Tilapia rendalli* was tried in one experiment  
Catfish was stocked in two ponds to help reduce the number of tadpoles

A 40mm mesh net is being used now and it catches 25g fish as minimum size. It needs bigger mesh size for table size.

*Activities from now*

1. Examination of harvesting with various mesh size of net to select suitable size of fish for collection of fingerling and harvest