

# 5. The farmer support programme in Venda

JF Kirsten, HJ Sartorius von Bach  
& J van Zyl

## 1. INTRODUCTION

The FSP in Venda consists of a comprehensive support programme for three selected target areas, namely Mulima, Khakhu and Mashamba. The three areas were part of the Venda dryland crop production project formerly financed by the South African Department of Foreign Affairs and in later years the responsibility of the Development Bank of Southern Africa (DBSA).

In August 1986 agreement was reached between DBSA and the borrower, the Agricultural Development Corporation of Venda (Agriven), to convert the dryland crop project into a comprehensive farmer support programme. The constraints experienced by farmers in the target areas were identified as being:

- low local availability of agricultural inputs
- insufficient extension and technical advisory support services
- untimely and inadequate mechanisation services (winter ploughing and late planting)
- lack of local institutional structures for coordinating and effecting input acquisition and produce distribution.

## 2. THE VENDA FSP

The three FSPs in Venda were introduced towards the end of 1988; the first credit was provided to farmers in October 1988 for the 1988/9 production season. Each FSP area has its own cooperative. Credit, ploughing services, inputs and other services are provided to the farmers through the cooperatives. By late 1989 there were three cooperatives with a total farmer membership of 932, and an average of 1 ha per farmer. Extension services are provided by the Venda Department of Agriculture and Forestry, while Agriven provides training on project-related matters (Singini & Sibisi, 1992). The order of importance of the elements of the FSP in Venda is mechanisation (especially ploughing services), credit, inputs, extension and training, and marketing.

## 3. SAMPLE SURVEY OF RURAL HOUSEHOLDS IN VENDA

Two of the three FSPs, Khakhu and Mashamba, were evaluated. Household surveys in the two areas were conducted during 1990-1 and again in December 1992. Only the results from the first survey were used in this paper.

### **3.1 Area description**

#### **3.1.1 Mashamba**

The Mashamba area is situated in the south-east of Venda along the Klein Letaba River. Mashamba has a variable topography with hilly slopes. The area has typical savannah vegetation ranging from sweet to semi-sweet grass species.

The average annual rainfall is approximately 800 mm. Rainfall peaks during the summer months. Mean minimum temperature in winter is 16°C and mean maximum temperature in summer 31°C. Frost has never been recorded.

Compared with other villages in Venda, Mashamba is densely populated. Employment is high. Most women are subsistence farmers. Most of the men are migrant workers and a few are in government service. Livestock farming is one of the main activities for male school-leavers and unemployed men.

#### **3.1.2 Khakhu**

The Khakhu area is situated on the Soutpansberg mountain range to the north of Thohoyandou. Khakhu has steep slopes with gradients of more than 12 per cent. Tropical forests are the main vegetation. Grazing conditions are poor owing to sourveld grass species. The soils tend to be sandy.

Average annual rainfall is 1 000 mm. Rainfall peaks in the summer months with intense thunderstorms. Mean temperatures are lower than in the Mashamba area: minimum 6°C and maximum 28°C. Frost can occur during cold spells in winter.

Khakhu is not as densely populated as Mashamba, but apart from that the demographic characteristics are similar. Literacy levels in Khakhu ward tend to be somewhat lower than in Mashamba.

### **3.2 Data collection**

Implementors were interviewed for the study. Data were collected by students of the University of Venda by means of a questionnaire survey conducted during June and July 1991. The sample comprised 148 rural households, 75 in Mashamba and 73 in Khakhu, from which 91 usable completed questionnaires were obtained. Of the total of 91 respondents, 22 were non-FSP clients, 32 FSP clients in the Khakhu ward and 37 FSP clients in the Mashamba ward.

Two samples were drawn from each ward: the first was a two-stage sample taken from the population of rural households in the ward and assumed that all members of this population were aware of Agriven's support programme. The second was a simple random sample drawn from a list of past and present FSP clients in each ward. The object of the two-stage sample was to elicit demographic and agricultural information representative of the study areas and to isolate a subset of

households that did not use Agriven credit. The random sample provided comparative information about the participants in the FSP credit schemes.

### 3.3 Survey results

#### 3.3.1 Household demographics

The mean household size in the study area was 6 persons (including migrants). Approximately 56 per cent of household members were under the age of 16 years and 5 per cent over the age of 60 years. There were slightly more female household members than male.

In Mashamba there were more males in the economically active age group (16–60 years), while in Khakhu more females. In Mashamba 36 per cent of the population was economically active and in Khakhu 43 per cent. There were more teachers and schoolchildren in Mashamba than in Khakhu and this is probably the reason for the higher literacy in Mashamba. Students and pupils were 10 per cent of the population of Khakhu and 35 per cent of the population of Mashamba. No formal schooling had been received by 43 per cent of the total household population.

#### 3.3.2 Household income

Household income and expenditure in the study areas are shown in Table 1. Income from farming contributed only 27 per cent to the total earnings of the household. However, estimates of farm income are unreliable as few households sold produce, and respondents gave income or expenditure figures unwillingly. Welfare payments and remittances accounted for nearly 8 per cent of off-farm income. Education, food, clothes, savings and instalments were the main household expenditures.

**Table 1: Average monthly income and expenditure of households in the study areas, 1991**

Income (R)		Expenditure (R)	
Crops	132,04	Education	133,41
Livestock	206,53	Food	164,06
Informal trade	100,40	Clothes	130,80
Rental from land	0,40	Savings	145,51
Hiring out equipment	6,12	Transport	48,54
Occasional work	8,16	Durables	64,39
Regular cash income	1 210,69	Personal	68,55
		Medical	60,69
		Instalments	108,20
Total	1 664,34	Total	924,15

### **3.3.3 Farming activities**

Households in the two survey areas were on average situated 436 metres away from the nearest watering point and 3.04 km away from their crop lands. The average size of land owned in Mashamba was 1,03 ha dryland crop land and 0,07 ha garden plot. The average size of rented land was 0,02 ha dryland crop land. In Khakhu the average size of land was 0,8 ha dryland and 0,11 ha irrigated crop land. No land was rented. Approximately 60 per cent of the respondents in both areas considered land the main determinant of their personal wealth. About 55 per cent of the farmers were not able to purchase or rent additional land, mainly because of lack of capital or credit facilities. Almost 61 per cent of the respondents indicated that they were able to work more land but did not have the means to purchase more land. Only 12 per cent of the farmers were prepared to rent out their land to another farmer.

The incidence of food cropping was high, but there was relatively little evidence of cash crops. Maize was produced by most households in the two study areas. Households producing dry beans and pumpkins were much fewer.

In the Mashamba region, each household had on average 0,9 ha of land planted mainly to maize and dry beans. In Khakhu, households had on average 1,35 ha planted mainly to maize and pumpkins.

The mean numbers of livestock were small, reflecting lack of grazing land (61,5 per cent of the respondents viewed this as a major constraint). On average, Mashamba households had 4 head of cattle, 0,6 goats and 9 chickens, while the households in Khakhu had 2,6 head of cattle, 0,4 goats and 1 chicken. These figures clearly reflect the higher grazing capacity of the Mashamba ward. Of FSP households 74 per cent kept no cows and 89 per cent no oxen. Of non-FSP households 82 per cent had no cows and 87 per cent no oxen.

In general, 54 per cent of the households kept cattle. Of these only 34 per cent had enough grazing for their requirements. This is a clear reflection of the condition of the veld, mostly indicated by the respondents as medium or poor. The respondents mostly stated that the veld was deteriorating because of drought and institutional reasons (no conservation possible, to keep less cattle was irrational).

Security of tenure was listed by 66 per cent of respondents as a major concern. The respondents indicated that they would prefer to have a title deed or some proof of ownership for the piece of land they were farming.

The need for fencing to keep cattle belonging to other farmers out of crop lands was indicated by farmers as their main problem. In wards where the tribal system of land tenure has not been altered by betterment planning, this problem arises because stock owners may graze their cattle on any land that is not cultivated; all fallow land is regarded as communal grazing. As a result, planting is often delayed because stock

owners use arable land for grazing during winter when the fields are fallow. In wards where betterment had been implemented grazing, arable land and residential areas are separated according to land quality criteria. Arable fields are allocated to households but grazing land is regarded as common property. When grazing camps are not adequately fenced, there is little a farmer can do to keep cattle off the crop land. The high incidence of households reporting this problem helps to explain why most respondents favoured privatisation of grazing land.

Demand for more land for cropping ('land hunger') was the second main problem of farmers in the study areas. As subsistence farmers increasingly become surplus producers and more commercially orientated, the demand for land will increase. Other land will have to be allocated to such farmers to accommodate their needs. The present tenure system will also have to be reformed to provide farmers with security of tenure. The shortage of crop land will clearly have to be considered in the evaluation of the FSP as it could be a stumbling-block to the progress of these farmers.

#### **4. IMPLEMENTATION OF THE FSP ELEMENTS**

##### **4.1 Mechanisation**

Farmers generally make use of mechanisation services provided through the three primary cooperatives. Agriven and the Department of Agriculture also provide mechanisation services. Agriven plays an important part in the mechanisation services provided by the cooperatives as it trains drivers and assists in the repair of machinery.

The Khakhu cooperative owns two Fiat (54 kW) tractors, a 1-ton trailer and a light pick-up truck. Agriven financed the acquisition of this equipment. The cooperative has not yet repaid any instalment. The cooperative has recently applied to Agriven for another tractor to increase its capacity during the planting season in the increased area under cultivation. Members approach the cooperative for ploughing or planting services. A list is then drawn up according to the day and time members require the service. Mechanisation services are rendered to members on a credit or cash basis at a cost of R72,19 per hectare. The service is available to non-members for R120 cash per hectare. During the 1990/1 season the Khakhu cooperative's mechanisation services to non-members were 151,7 ha ploughed, 5 ha disced and 2 ha planted. The income earned by the cooperative for these services amounted to R6 578. The Khakhu farmers are generally satisfied with the mechanisation service as a better and more reliable system of ploughing than Agriven's or the Venda government's. The yields of farmers are higher as a result of deeper ploughing and better moisture retention of the soil.

The Mashamba cooperative owns 6 Fiat (56 kW) tractors which are used for ploughing, discing and planting. The members of the Mashamba cooperative also view the tractor service as the most attractive element of the FSP.

Both the cooperatives have their own transport in the form of a 1-ton delivery van. Such vehicles are mostly used by managers in the execution of their day-to-day responsibilities as well as for collecting stock, especially minor items. Owing to the poor state of access roads, very few private contractors are prepared to make deliveries to the cooperatives. The cooperative at Khakhu has to arrange for transport to deliver inputs and other products to the cooperative as Agriven provides no transport. Transport costs are more or less R250 for a 7-ton truck load.

According to the head of the mechanisation division of Agriven, the tractors of the cooperatives initially had to be repaired monthly, for which service the cooperatives paid. With training of the drivers the cost of repairs decreased, which furthermore improved the effectiveness of the cooperatives' services since the cooperatives could save this cost and spend it on other items.

Thus the cooperatives are to a large degree the only efficient providers of mechanisation services to FSP farmers. It is not clear if, apart from Agriven, any independent tractor contractors operate in the two areas. According to the project description, one of the responsibilities of the primary cooperatives was the coordination and training of independent mechanisation contractors. This was apparently not adhered to and at present the cooperatives still own the tractors.

**Table 2: Mechanisation and input costs per hectare at Khakhu**

Season	Tractor services			Fertiliser 2.3.2	Seed LAN	Total cost per hectare	
	Plough	Disc	Plant				
1988/9	37.50	18.75	18.75	94.32	71.37	41.50	282.19
1989/90	37.50	18.75	18.75	110.42	87.47	57.60	330.49
1990/1	65.63	32.81	32.81	93.56	85.80	53.90	364.51
1991/2	65.63	32.81	32.81	93.56	85.80	53.90	364.51

#### 4.2 Inputs

Agriven, through the primary cooperatives, assisted in various aspects of crop production in the two study areas. Agriven informed 52 per cent of the respondents when to plough, 50 per cent when to plant, 32 per cent when to weed and 32 per cent when to harvest. The cooperatives ploughed the crop lands of 73 per cent of the respondents with their tractors, planted crops for 70 per cent and weeded for 2 per cent. The farmers mainly used manufactured fertiliser (71 per cent), and 54 per cent made use of dung. Insecticides were used by 13 per cent, pesticides by 12 per cent and herbicides by 5.5 per cent. Mechanical fertiliser application was used by 62 per cent of the respondents; mechanical planting by 74 per cent and mechanical harvesting by 2 per cent.

The number of respondents in the study areas who had access to the various inputs (mainly supplied by the primary cooperatives) were:

fertiliser, 76 per cent; seed, 76 per cent; chemicals, 2 per cent; ploughing services, 71 per cent; farm labour, 1 per cent; extension services, 57 per cent; credit, 75 per cent; and dips and sprays, 32 per cent. It is difficult to establish from these figures whether the support elements of the programme are functioning as intended because non-FSP farmers were also included in the sample. Section 5.4 distinguishes between FSP and non-FSP farmers. The above figures give an idea of the availability of inputs.

Table 3 gives quantities and prices of farm inputs used by farmers in the two tribal wards. These figures are averages; some respondents used as much as 250 kg of chemical fertiliser. The management committee of the Khakhu cooperative together with the extension officer decides what inputs (fertiliser) to use. The Dryland Crop Production Committee also advises by doing soil analysis and recommending the quantity and type of fertiliser to be used. At present the cooperative at Khakhu uses 2.3.2 fertiliser and applies 4 bags per hectare. At Mashamba 2 bags of fertiliser are applied per hectare. Primary cooperatives like Khakhu and Mashamba in the past bought their inputs from the Venda secondary cooperative – see 6.3 below.

**Table 3: Average individual farm input purchases, 1991**

Item	Khakhu		Mashamba		Mean	
	(kg)	(R)	(kg)	(R)	(kg)	(R)
Seed	32,02	206,43	17,75	60,13	25,35	128,40
Chemical fertilisers	21,68	44,83	8,75	21,88	14,72	32,48
Organic fertiliser	11,90	-	3,48	3,47	7,50	1,87
Ploughing service		11,38		20,16		16,11
Labour (weeding) (R/h)		-		2,04		1,10
Labour (harvesting) (R/h)		-		2,04		1,10

The amounts of inputs used by the members of the two cooperatives during the 1991/2 crop season were as follows:

**Table 4: Inputs used in Khakhu and Mashamba in 1991/2**

Input	Khakhu	Mashamba
Area planted (ha)	103	257
Seed (kg)	5 000	3 924
Fertiliser: 2.3.2 (kg)	24 700	28 700
LAN (kg)	7 500	-

The yields of the previous season (1990/1) in the two areas were as follows (owing to the drought virtually no yields were recorded in the 1991/2 production season).

**Table 5: Maize yields in Khakhu and Mashamba, 1990/1**

	<b>Khakhu (t/ha)</b>	<b>Mashamba (t/ha)</b>
Target yields (1990/1)	3	1,5
Actual yields	1,6	0,72

### **4.3 Credit**

Credit under the FSP in Venda is provided to farmers through the various primary cooperatives. Farmers indicated in the survey that in general FSP-related credit was easily available. The credit officer was on average situated about 2 km away from the study areas and it took about one month for approval of their applications.

Most FSP farmers make use of the credit facility. Some prefer not to take up the credit and rather pay cash for services and inputs. Farmers are generally advised to pay cash for inputs if they have it. The reasons given for joining the FSP credit scheme were easy access (57 per cent), cheapest source of credit (56 per cent), to meet credit needs (39 per cent), insufficient own savings (19 per cent), little or no collateral needed (2 per cent). The reason for leaving the FSP credit scheme was mainly inability to meet the repayment schedule (68 per cent). Other reasons given were insufficient credit offered (48 per cent), credit not available when needed (31 per cent) and poor service provided (31 per cent).

Members of the cooperatives receive revolving credit for fertiliser, ploughing, discing, seed, etc. Credit is provided according to the area cultivated and is calculated by the hectare. Credit provided to members for the 1991/2 season amounted to R364,51 per hectare at Khakhu and R309,13 at Mashamba. The interest rate is 9 per cent per annum (or 0,75 per cent per month) and the farmers are given 6 months to repay.

The programme manager at Agriven and the managers of the cooperatives believe that all the farmers know they have to repay their loans, know the terms and are aware of the consequences if they do not repay their loans. However, they admitted that only 25 per cent of the farmers understood the principle of interest and the reason why they had to pay interest. Forty-two per cent of the respondents thought that they would be brought to court by not repaying their FSP debt, 18 per cent that Agriven would not serve them again and only 3 per cent that nothing would happen. Both cooperatives have the policy that if members have not repaid their debt from the previous season no new credit will be issued to them. A monthly statement is issued to all members to inform



them of their outstanding debt (no statements were issued at Mashamba). If members have not repaid the loan after 6 months, the management committee of the cooperative will have a meeting with them to urge them to repay the debt. If members still fail to repay, they are referred to the local council where the chief will do his best to ensure that they repay. The last option is court action.

Crop failure and drought are the main reasons why farmers were not repaying their loans. The number of loans defaulted at Khakhu was initially 8. The default rate increased with the unfavourable crop conditions to 25 in the 1990/1 season. The credit position of the Mashamba cooperative was not known to the management owing to poor record-keeping. According to the seconded manager, computerisation of the financial system of the cooperative was needed for issuing monthly statements to farmers. The continual moving of clients from one village to another and changing of identity were further complications for credit management.

The loans provided to farmers by the two cooperatives are summarised in Table 6. At Khakhu cooperative, and ignoring the last season (drought), loans per member are decreasing (from R207 to R150). The increase in credit per hectare is due to increased cultivation adjacent to Thononda, the location of the cooperative.

**Table 6: Credit provision at the Khakhu and Mashamba FSP cooperatives**

Season	Khakhu					Mashamba				
	Members	Area planted (ha)	Credit per ha (R)	Total loan (R)	Repayment (%)	Members	Area planted (ha)	Credit per ha (R)	Total loan (R)	Repayment (%)
1988/9	182	134	282.19	37 672	93.8	-	-	-	83 713	68.0
1989/90	216	122	330.49	40 218	61.9	514	416	-	92 846	67.6
1990/1	250	104	364.51	37 909	33.9	592	293	-	80 000 <sup>†</sup>	63.4
1991/2	300	103	364.51 <sup>†</sup>	53 492	1.9*	592	257	309.13	75 265	19.8*

\*Owing to drought.

†Estimated.

#### 4.4 Extension

Extension services are provided by the Venda Department of Agriculture and Forestry; Agriven provides training on project-related matters. A great deal of training is also done through the various levels of the extension service of the Venda Department of Agriculture and Forestry. Mashamba and Mulima wards are served by two extension officers, and Khakhu ward by one. Personal visits are the most common form of extension service in Venda, although media facilities, such as radio talks and publications, are also used. Farmers' days are arranged to deal with special problems within the fields, with guest speakers being invited to address farmers.

The Venda extension service is operating at very low efficiency because of inadequate training and various other reasons. During 1989 only four agricultural graduates were employed by the department. There are no subject matter specialists to perform the key tasks of making contact with research stations, executing and supervising adaptive research programmes on farmers' fields, training field staff and obtaining feedback from the field staff on farmers' problems. The linkages between research, extension and farmers are not effective in Venda. This is also the position in other national states (Bembridge, 1988).

Senior and junior extension staff of the Department of Agriculture and Forestry did not have a clear knowledge of objectives and policy guidelines for planning their work. This often resulted in ad hoc extension services and lack of coordination and follow-up. The planning division of the department was not in a position to supply back-up services to the extension service and there was almost no contact with subject matter specialists and researchers. The division of staff between dryland and irrigation extension service was unfavourable to training. Women filled only 7,5 per cent of agricultural officer posts (12 in 160 posts) (Naledzani, 1992).

Middle management was not very clear on the application of accepted management principles, an observation that was also made of field-level extension workers. The ad hoc service meant that no work calendars were kept.

Record-keeping was very poor, the reporting system serving record purposes more than managerial control. Only the current state of agriculture was reported on, and not the progress made (Naledzani, 1992).

Although all officers underwent some training at an agricultural college for 2 to 3 years, only 39 per cent of senior staff had achieved a qualification (formal) above standard 8, compared with 76 per cent of junior staff. Most of the extension officers lacked practical farming experience (Naledzani, 1992).

The training of extension officers serving the FSPs should be upgraded as a matter of priority. Such extension officers should also introduce a programming approach to their day-to-day activities in order to improve contact with farmers and facilitate adoption of improved varieties and techniques.

The conditions of service were found to be poor and this did not encourage extension workers to perform their duties properly. These conditions included lack of accommodation, lack of transport, shorter terms of service in an operational area and uncompetitive salary. About 85 per cent of middle and 87 per cent of junior field staff were without transport.

Almost all head office staff had motorised transport. Only 14 per cent of field staff had more than 4 years experience in one operational area. Junior and senior staff members were dissatisfied with the level of training (Bembridge, 1988).

At all the FSPs extension was provided by the Department of Agriculture and Forestry, as stipulated in the project description. According to the programme manager of the implementing agent, Agriven, this institutional arrangement is not conducive to increased production as the extension officers are not necessarily reporting to him despite the provisions of the project description. Extension officers should be permanently seconded to Agriven and report directly to the programme manager or his delegate. The improved coordination would improve the efficiency of the extension service and its responsiveness to the development activities of the FSPs.

These observations were shared by farmers in a recent survey of rural households in Venda. Respondents felt that the extension service was inefficient. Demand for information was high, considering that 89 per cent of households wanted to see the extension officer more often. The extension service was regarded as of good quality by 49 per cent of respondents, and as being readily available by 80 per cent; however, farmers might see it this way because advice and support are often linked to the mechanisation service; inadequate extension services were listed by 51 per cent of the respondents as one of their main problems in farming. In addition there was low attendance at training courses (on crop production, soil conservation, crop storage, farm budgeting and livestock improvement).

#### **4.6 Marketing**

The Khakhu and Mashamba cooperatives do not provide marketing facilities as their members prefer to sell their maize out of hand. Farmers are currently obtaining higher prices from out-of-hand sales: during the 1990/1 season farmers obtained prices as high as R50 per 70 kg bag, or R714 per ton of maize. One farmer delivered his total crop (20 bags or 1.4 tons) from his 1-hectare plot to Noord-Transvaalse Koöp for R419, or R299 per ton. This compares favourably with the Maize Board's producer price of R302 (after accounting for deferred payments) during 1990/1.

### **5. CONTRIBUTION OF THE FSP IN VENDA**

#### **5.1 Introduction**

To determine the effect of the FSP, the ideal would be to compare the situation with FSP with the baseline situation (before implementation of the programme). This would give a clear indication of the effect of the FSP on agricultural output, input use, household income and food security. Such a baseline study was not done, although it was recommended in the original guidelines of the FSP (DBSA, 1986: 23):

During the planning of the programme, an agricultural profile of the area should be established. Detailed baseline studies are not always necessary, but an assessment of the following should be made:

- i) the farmers' perception of the constraints they face
- ii) the nature of land utilisation and distribution
- iii) the extent of migration, commuting and local employment in the area
- iv) the proportion of agricultural income to migrant income
- v) the institutional structures and infrastructure
- vi) the identification of new constraints.

Because it was not possible to determine the effect of the FSP, the best alternative available was to compare FSP farmers with farmers not taking part in the programme or farmers easily identifiable as not being members of the various cooperatives. This would give some idea of the effect of the FSP on agricultural output, input use, household income, food security, debt levels and standard of living. However, this process has a flaw as non-FSP farmers might also be able to use the various support services. The only feasible and probably more correct approach would therefore be to establish the possible effect of the FSP on certain key indicators. These indicators are discussed next.

## **5.2 Contribution of the FSP to agricultural output**

Information on the farming enterprises of FSP members and non-FSP members is provided in Table 7.

On comparing farmers participating in the Venda FSP and non-FSP farmers it was found that the FSP farmers produced on average 12.03 bags of maize per hectare compared with 7.92 bags for non-FSP farmers. The difference in maize production is significant at the 1 per cent level. The question now arises whether FSP contributed to the increase in agricultural (maize) output. An analysis was done to determine the factors in increased (or surplus) production. If these factors could be linked to the elements of the FSP, then the higher yields could be attributed (at least partly) to the FSP.

To estimate the relative contribution of the FSP to levels of farm output, an econometric model was designed and tested. The model discriminated between households that sold produce and those that did not. It was postulated that sellers of farm produce would use more fertiliser, spend more on contractor services, use more FSP credit, rent more land, purchase more chemicals than non-sellers. In addition, it was expected that the incidence of households that knew the agricultural officer and of households that owned farm machinery would be higher among sellers.

The results of the discriminant analysis are presented in Table 8. The error count for the classifications was 14,33 per cent. The relative importance of each explanatory variable in discriminating between surplus and deficit producers is given by the magnitude of its partial  $R^2$  value and the standardised coefficient.

**Table 7: Means of key variables for FSP and non-FSP farmers, 1991**

	Respondents		Significance of difference between the means (p value)
	FSP (n=69)	Non-FSP (n=14)	
Crop land ploughed (ha)	4,33	3,10	0,0810
Crop land planted (ha)	4,25	2,70	0,1328
Area under maize (ha)	0,99	1,00	0,0219*
Area intercropped (ha)	2,00	2,93	0,6341
Production of maize (bags)	12,03	7,92	0,0063+
Consumption of maize (bags)	7,04	7,07	0,4764
Maize sold (bags)	3,89	0,85	0,0001+
Area under dry beans (ha)	0,05	0,14	0,1393
Production of dry beans (bags)	0,26	0,75	0,2326
Consumption of dry beans (bags)	0,19	0,15	0,0061†
Dry beans sold (bags)	0,07	0,21	0,3240
Area under pumpkins (ha)	0,04	0,23	0,0000†
Production of pumpkins (bags)	1,95	3,57	0,0000†
Consumption of pumpkins (bags)	1,66	3,57	0,0000†
Pumpkins sold (bags)	-	-	-

\*Difference between the means is significant at 5% level.

†Difference between the means is significant at 1% level.

The discriminant function in Table 8 was estimated with the following explanatory variables distinguishing between surplus and deficit producers: soil erosion's effect on production; availability of ploughing services; education expenditure; and use of chemical fertiliser. The variable 'soil erosion's effect on production' will reflect the value and benefit of appropriate extension. The important contribution of extension to increased production is furthermore reflected in 'use of chemical fertiliser'. This variable also explains the importance of the availability and financing of inputs in contributing to increased production. The availability of ploughing services accentuates the importance of access to appropriate services.

From the discriminant analysis it is clear that the factors associated with FSPs in the Mashamba and Khakhu areas of Venda (extension, ploughing services, inputs) have a part in discriminating between deficit and surplus producers. The use of fertilisers and ploughing services is furthermore significantly correlated with the provision of credit ( $r = 0.943$ ;  $p = 0.003$ ). This illustrates the positive effect of the FSP. In other words, it can be stated with relative confidence that the elements of the support programme contributed at least partly to an increase in agricultural output. In addition it seems that extension, despite the reported inefficiencies and lack of coordination, also contributed to increased production.

**Table 8: Estimated discriminant function for surplus and deficit producing households**

Explanatory variable	Standardised coefficient		Partial R <sup>2</sup>	Significance P<F	Group means		
	Surplus producers	Deficit producers			Surplus producers	Deficit producers	Significance P<t
Soil erosion's effect on production	2.917	4.164	0.1791	0.0917	1.161*	1.433*	0.0856
Availability of ploughing services	18.394	12.079	0.2603	0.0520	1.000*	1.100*	0.0002
Education expenditure	-0.0110	-0.0077	0.3206	0.0222	110.39	102.21	0.0143
Use of chemical fertiliser	0.0159	0.0158	0.0871	0.1000	156.55	90.387	0.3473
Number of cases					25	30	

\*Dummy variable with 1 = yes and 2 = no.

### 5.3 Contribution of the FSP to marketable output

From Table 7 it is also evident that there is a significant difference ( $p = 0.0001$ ) between the quantity of maize sold by FSP farmers and that by non-FSP farmers. The FSP farmers sold on average 3.89 bags of maize, the non-FSP farmers only 0.85 bags. This difference can with some certainty also be attributed to the support elements provided by the FSP.

The fact that farmers are selling a certain percentage of their crop should be put in perspective by considering the case of one farmer at Mashamba, who harvested 18 bags of maize during the 1990/1 season (more than the average yield). This is 6 bags more than his home consumption, and he can thus theoretically be classed as a commercial farmer selling surplus production. In practice there will be nothing left of his marketable surplus after he has paid the equivalent of 3.8 bags for inputs, 2.4 bags for milling costs and 3-4 bags for transport and labour. The reason that FSP farmers sell maize is mainly to be able to repay their production loans and to cover other costs incurred in production. It therefore seems that profits from farming are still marginal for most farmers.

Dankwa (1992), using the same survey data, furthermore found that 52 per cent of the households were net consumers while 48 per cent sold some of the maize produced. Of the non-FSP households 88 per cent

were identified as net consumers and 12 per cent sold between 26 and 50 per cent of their maize crop.

#### 5.4 Contribution of the FSP to increased use of inputs

Table 9 provides a summary of the average quantity of inputs used by FSP members and non-FSP members and also the cost of the various inputs used. From this information it is possible to determine how the FSP, through the availability of inputs and the provision of extension advice, contributes to increased use of inputs, for example hybrid seed and chemical fertiliser. The FSP members in Khakhu and Mashamba used on average 144 kg of fertiliser, compared with 27 kg by the non-FSP farmers. (These figures could be misleading because some households used up to 200 kg of chemical fertiliser and some none.)

**Table 9: Household input purchases by FSP and non-FSP farmers, 1991**

	Respondents		Significance of difference between means (p value)
	FSP (n=69)	Non-FSP (n=14)	
Seed used (kg)	28,98	15,66	0,4771
Fertiliser used (kg)	144,42	27,38	0,0000*
Organic fertiliser used (bags)	1,52	25,45	0,0000*
Ploughing service rented (R)	14,46	19,14	0,1504

\* Difference between the means is significant at 1% level.

Of more importance is input use per hectare. It was calculated that the FSP farmers used on average 28,4 kg of seed and 156,5 kg of manufactured fertiliser per hectare. The non-FSP farmers used 27,9 kg of seed and 36,6 kg of fertiliser per hectare. The non-FSP farmers, however, used mainly their own seed, which is clear from the amounts spent on purchased seed. The FSP farmers spent on average R165 on hybrid seed while the non-FSP farmers spent only R13 on purchased seed. The high use of organic fertiliser by non-FSP farmers is another difference between the two groups of farmers. This to some extent reflects lack of availability of chemical fertiliser to non-FSP farmers as well as a lack of finance to purchase fertiliser.

The FSP farmers in the two wards furthermore indicated that they were generally satisfied (98 per cent of respondents) with the availability of inputs. The non-FSP members were to a large extent dissatisfied with the availability of all the inputs. Only 7 per cent of the non-FSP farmers had regular access to fertiliser and seed. The FSP farmers considered availability of pesticides and labour a major problem: only 3 per cent could obtain chemical pesticides. Apart from this, it is clear that most inputs are generally available in the right packaging and quantity when needed.

To determine the contribution of the FSP to increased use of agricultural inputs a model was developed which discriminates between households that used large quantities of purchased fertilisers (>150 kg) and those that used small amounts (<50 kg). Apart from fertiliser, all the explanatory variables tested in the model were considered. This model analyses the household's intention to produce a larger output. The model also has more degrees of freedom in the smaller group. This is desirable as the tests and statistical significance are more reliable. The error count for discriminating between high and low applications was 19,26 per cent. The two explanatory variables included in the discriminant function (Table 10) in effect implicate extension as the main factor associated with higher use of inputs, in this case fertiliser. It can therefore be concluded that elements of the FSP can be associated with increased use of fertiliser.

**Table 10: Estimated discriminant function for high and low fertiliser input farming**

Explanatory variable	Standardised coefficient		Partial R <sup>2</sup>	Significance P<F	Group means		
	High	Low			High	Low	Significance P<t
Carry out soil conservation practices	5.9954	9.3061	0.6917	0.0001	1.937*	1.407*	0.0000
Want to see the extension officer more often	13.2127	10.2889	0.2116	0.0001	1.000*	1.132*	0.0001
Number of cases					31	53	

\*Dummy variable with 1 = yes and 2 = no.

The same conclusion was made when a similar function was fitted to discriminate between households that used large amounts of purchased seed (>50 kg) and those that used small amounts (<10 kg). Apart from seed, all the explanatory variables tested in the model were considered. This model analyses the household's intention to produce a larger output and supports the function discussed above (correlation between seed and fertiliser). The error count for discriminating between the high and low applications was 12.69 per cent. Again, as expected, all the explanatory variables selected, namely use of chemical fertiliser, mechanical fertiliser application, use of chemical insecticides and number of males, had positive signs (Table 11). Mechanical fertiliser application and use of chemical insecticides were the most important variables discriminating between the two groups. The statistical significance of the variables was high. Use of chemical fertiliser and mechanical fertilising are important in establishing if the households are



using large quantities of seed. In other words, farmers applying modern farming methods (chemical fertiliser applied mechanically) are expected to use more seed. Again these results can be linked to the extension service as extension and advice are essential to the adoption of modern farming methods by these farmers.

**Table 11: Estimated discriminant function for high and low seed use**

Explanatory variable	Standardised coefficient		Partial R <sup>2</sup>	Significance P<F	Group means		
	High	Low			High	Low	Significance P<t
Use chemical fertiliser	0,0027	0,0316	0,2709	0,0000	136,00	5,468	0,0000
Mechanical fertiliser application	21,1994	16,9186	0,1917	0,0063	1,680*	1,928*	0,0007
Use of chemical insecticides	15,0127	14,6115	0,3200	0,0027	1,360*	1,500*	0,0848
Number of males	2,6692	2,2253	0,2065	0,0770	2,160	3,286	0,0530
Number of cases					25	32	

\*Dummy variable with 1 = yes and 2 = no.

From these two discriminant analyses it is clear that effective extension (linked to the variables of soil conservation practice, chemical fertiliser use, mechanical fertiliser application and chemical insecticide use) is one of the most important FSP elements contributing to higher input use.

From the chi-square values it is found that only increased use of fertiliser can be related to FSP membership. There seems to be no relationship between FSP membership and increased purchase of hybrid seed.

### 5.5 Contribution of the FSP to household food security

In section 5.3 it was indicated that the FSP group had proportionally more sellers of produce than net consumers compared with the non-FSP group. Non-FSP households spend more on food and groceries than FSP households (Table 12;  $p = 0,0328$ ). The fact that FSP households sell more maize and spend less on food and groceries means they have better food security. This may again be explained partly by the fact that the FSP group has more contacts with extension personnel and also more access to production inputs than the non-FSP group.

**Table 12: Income and expenditure of FSP and non-FSP members, 1991**

	<b>FSP farmers, n=69 (R)</b>	<b>Non-FSP farmers, n=14 (R)</b>	<b>Significance of difference between means (p value)</b>
Savings account	2005.21	1052.85	0,0000 <sup>†</sup>
Income from crops	144.59	32.14	0,0000 <sup>†</sup>
Livestock sales	186.23	80,00	0,0000 <sup>†</sup>
Funeral policy	421,59	439,64	0,0000 <sup>†</sup>
Monthly insurance premium	18,04	92,57	0,0000 <sup>†</sup>
Education expenditure	108,46	59,36	0,0694
Food/groceries	122,29	150,28	0,0328*
Clothes	122,04	121,42	0,5913
Transport	34,62	53,07	0,2076
Durables	30,04	28,07	0,1500
Personal expenditures	56,53	31,43	0,0000 <sup>†</sup>
Medical	48,68	40,28	0,3341
Instalments	65,91	71,85	0,9182
Total expenditure	1028,20	1087,97	

\*Difference between the means is significant at 5% level.

<sup>†</sup>Difference between the means is significant at 1% level.

Using the survey data and ordinary least squares procedures, Dankwa (1992) calculated expenditure elasticities for FSP and non-FSP households in Venda. The expenditure elasticity for food/groceries for the non-FSP group was 0,80 and highly significant ( $p = 0,0089$ ). The estimated elasticity for the FSP group was slightly lower (0,78) but also highly significant ( $p = 0,0067$ ). This finding of inelastic food/groceries expenditure reinforces the finding in Table 12 that the non-FSP group spends more on food and groceries than the FSP group. It is thus believed that provision of support services to subsistence farmers will help improve food security in rural areas.

### **5.6 Contribution of the FSP to household income and standard of living**

From Table 12 it is evident that FSP farmers earned more than non-FSP farmers from the sale of crops and livestock, and also had bigger savings accounts. FSP members had higher education, durables, personal and medical expenditures, while non-FSP farmers had higher expenditures on insurance and funeral policies and basic items like food, transport and instalments. No definite conclusions can be drawn from these findings about the contribution of the FSP to household income and standard of living; it is often argued that it is usually households with a higher standard of living that in any case participate in the FSP. It is not

quite correct to conclude that the FSP contributed to improved standard of living as the base scenarios before the implementation of the FSP are not known.

In an analysis done by Sartorius von Bach et al (1992) it was also shown how the FSP in Venda influenced the need hierarchies of participants. Deficit producers were still attending to basic needs (food, clothing) while surplus producers attended to higher order needs (education, durable goods).

### 5.7 The FSP and household debt

The weighted average value of new seasonal loans increased from R130 in 1988 to R213 in 1990 (constant 1990 prices). The FSP farmers' outstanding balance over the three-year period was only R14 per client. The reason for this is probably that 81 per cent of all clients sampled thought that Agriven would take legal action against defaulters. The non-FSP farmers did not have any outstanding debt over the same period (Table 13).

**Table 13: Household access to credit among Agriven clients and non-clients, 1991**

	Khakhu	Mashamba	FSP farmers	Non-FSP farmers
Households sampled	32	37	69	14
Amount borrowed per client, 1988 (R)	260,28	17,78	130,24	22,50
Amount borrowed per client, 1989 (R)	286,94	104,80	189,27	32,92
Amount borrowed per client, 1990 (R)	321,89	120,13	213,70	62,83
Mean outstanding balance, 1988-90 (R)	3,98	22,66	14,00	0
Clients who thought that Agriven would act against defaulters (%)	83,3	78,8	80,9	-
Clients who were not sure what would happen to defaulters (%)	2,8	3,0	2,9	-

From Table 13 it is also evident that FSP farmers borrow larger amounts than non-FSP farmers and thus have a greater risk of defaulting. Because of the past drought a number of FSP farmers were unable to repay their loans. In a recent survey 30 per cent of respondents indicated that they owed more because of the drought. The FSP credit scheme increases the farming risk of these farmers on account of the variable climate.

## **6. INSTITUTIONAL ARRANGEMENTS**

### **6.1 Introduction**

The institutional structuring of the FSP, as outlined in the project description and the loan agreement between Agriven and DBSA, provides a well-defined arrangement of interdependent roles for participants in each target area. The project description assigns various responsibilities to Agriven (the borrower), the Venda Department of Agriculture and Forestry, Venda secondary cooperative, local authorities, primary cooperatives, farmers and the Venda Dryland Crop Production Committee.

It became clear from discussions with various officials that the joint responsibility of Agriven and the Venda Department of Agriculture and Forestry created some problems and to some extent contributed to inefficiency in the implementation of the programme.

### **6.2 FSP action committee and farmer committees**

According to the project description, the FSP action committee was supposed to establish and assist the primary cooperatives, but was found effectively to have disbanded. The committee consisted of the programme manager and the manager of extension and specialist services, the latter representing Agriven and unofficially representing the Department of Agriculture and Forestry. The representative of the department has since retired and it is understood that he had in fact lost interest before retirement. No substitute has since been appointed by the department, and this has effectively crippled the committee.

The arrangement of appointing the programme manager as a member of the FSP action committee leaves much to be desired as the programme manager is also a member of the implementing team, which reports to the FSP action committee. The absence of the FSP action committee creates a gap in institutional responsibilities and coordination of the FSP, and this is bound to affect the FSP's efficiency. The FSP action committee is supposed to assist the cooperatives in organisational structuring, day-to-day management and training of staff. It seems that the programme manager is now performing most of the duties of the FSP action committee. The role of the Venda Dryland Crop Production Committee is also not clear.

There were no farmer committees at any of the FSPs. This also created an institutional gap and consequently abdication of certain responsibilities. According to the seconded manager at Mashamba cooperative, a farmer committee was not necessary: as cooperative members lacked knowledge, the manager usually took all production decisions in conjunction with the extension officer. The same applied to Mulima. The solving of disputes between farmers at Mashamba and Mulima was done by the management committees of the respective cooperatives. At Khakhu, although farmers had a say in production decisions through the management committee, individual decision was limited as all plots were established with the same per hectare package of inputs (quality

and quantity) and farmers were debited with a loan facility in proportion to the size of their plot. Thus farmers at the cooperatives could not decide on the type and quantity of production inputs to be used.

### **6.3 Venda Farmers Secondary Cooperative**

It was established from the programme manager that, although the Venda secondary cooperative supplied inputs and some logistical support for mechanisation, no training was ever provided to the staff of the primary cooperatives nor were marketing channels established. The project description delegated training responsibility to too many parties, so encouraging non-performance as no real accountability could be identified.

The secondary cooperative has now been closed down owing to financial problems. Another supplier of inputs and logistical support must be sought.

Even during its existence, the secondary cooperative did not offer competitive prices. It is therefore advisable not to prescribe any single supplier to the primary cooperatives, but rather to encourage the cooperatives' management to buy from the cheapest suppliers. The consignment arrangement did not get off the ground as the secondary cooperative supplied inputs on 30-day terms in order to alleviate its financial problems. Consignment buying of stock will, however, greatly improve the financial position of the cooperatives.

### **6.4 Venda government**

Formation of the farmer committees, according to the project description, was the responsibility of the Venda Department of Agriculture and Forestry. Failure of the department to attend to this meant that there were no farmer committees. This and the failure of the department to nominate a substitute for the FSP action committee brings into question the attitude and dedication of the department to the FSPs.

The project description's stipulation that the department should provide the extension service seems to completely overlook the findings of Bembridge (1988) on the quality of the extension service in Venda. At all three FSPs extension is being provided by the Department of Agriculture and Forestry. Despite the provisions of the project description extension officers are not necessarily reporting to the programme manager. This lack of coordination stands in the way of efficient management – see 4.5.

### **6.5 Local authorities and primary cooperatives**

The role of the local authorities in resolving disputes has been minimal except at Khakhu where the local headman (chief) had a say in the activities of the cooperative.

None of the three primary cooperatives in the Venda FSP bought or marketed members' surplus produce or developed marketing channels. The

cooperatives do not have the capacity for these tasks, which should be delegated to the marketing department of Agriven until the cooperatives are capable of them. The importance of marketing in the commercialisation of subsistence agriculture cannot be overemphasised.

## **6.6 Coordination of the institutional structure**

From the institutional structure as implemented and currently operating it appears that most of the institutions or committees are defunct. This does not necessarily lead to negative results. The existing structure seems better served by a slimmer institutional set-up with only one implementing agent with coordinating functions to ensure that all FSP elements are provided. Results show that extension services especially are not effectively included in the Venda FSP package.

In general, it can be concluded that the implementing agents in Venda are set on uplifting the rural population. Institutional record-keeping is improving. The increasing own decision-making of especially the participants and the cooperative in the Khakhu ward indicates that an FSP based on mechanisation services meets the objective of the learning-by-doing approach to development. The effectiveness of the programme will increase if more attention is given to the other elements of the FSP, such as extension and marketing.

## **7. SUMMARY AND CONCLUSIONS**

The FSP largely alleviated the constraints experienced by Venda farmers in the target areas. Farmers who joined the FSP had improved access to inputs, extension advice was generally available to them and mechanisation services were more available and more reliable. Poor mechanisation services had probably been the biggest constraint for many Venda farmers. This element of the FSP contributed to increased maize production, as shown in the discriminant analysis.

Although extension advice was provided to farmers in general and also contributed to increased production, dissatisfaction with the extension service was clearly evident from results of the household survey. This stems to a large extent from lack of commitment by extension officers and from lack of coordination.

An institutional structure is required that allows each FSP element to support the others for growth and development of the farming community. The local institutional structure in Venda as a whole lacked coordination and efficiency. Some of the institutional structures established on implementation of the FSP have disbanded or are defunct. Institutional inefficiencies, duplication and lack of coordination seem to be the main problem of the Venda FSP at present.

It is recommended that the institutional framework within which the FSP operates be reviewed. The accountability of institutions, organi-

sations and committees should be clearly defined before responsibilities are assigned.

Agriven should accord the FSP a higher level within its management and organisational structures than the current subsection in which the programme is managed. A full-fledged FSP section should be established within Agriven, manned by a team of well-qualified personnel rather than the present one-man show. All personnel involved in the FSP must fall under the supervision of a well-qualified FSP programme manager.

The FSP in Venda can with some confidence be associated with increases in agricultural output, sales of surplus produce, use of inputs (eg fertiliser and hybrid seeds), household food security and standard of living. Farming risk has increased because of higher debt levels. Although the implementation of the FSP in Venda seems to be generally successful, unfavourable climatic conditions, higher indebtedness and institutional inefficiencies may influence the success of the programme.

## **8. REFERENCES**

- BEMBRIDGE, TJ, 1988. An evaluation of the Venda agriculture extension service. Unpublished. Department of Agriculture and Forestry, Thohoyandou.
- DANKWA, KB, 1992. Determinants of household food security in Lebowa and Venda. MSc Agric dissertation, University of Pretoria.
- DBSA, 1986. Policy Issue Paper: Policy guidelines in respect of the farmer support programme.
- NALEDZANI, AT, 1992. The farmer support programme and agricultural development in Venda. PhD thesis, University of Pretoria.
- SARTORIUS VON BACH, HJ, VAN ZYL, J & BOTHA, CAJ, 1992. Farming support programmes in Venda: Effects on consumption and investment behaviour and resultant policy options. *South African Journal of Agricultural Extension*, Vol 21.
- SINGINI, R & SIBISI, ML, 1992. An overview of the farmer support programme evaluation as proposed by DBSA. In Csaki, C, Dams, TJ, Metzger, D & Van Zyl, J. *Agricultural restructuring in Southern Africa*. Windhoek: IAAE/Agrecona.