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SAHEL INSTITUTE

TECHNOLOGY TRANSFER INITIATIVE

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REGIONAL SYNTHESIS on the 2002-2003 Cropping Season

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REGIONAL Synthesis on the 2002 - 2003 Cropping Season

Technology Transfer Initiative
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En haut : (épis et graines d'une variété de mil sélectionnée)
En bas : (gousses et graines de niébé)

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FOREWORD

Agricultural research is a sector that has been mobilizing financial resources since the nineteen sixties (1960s) to date. The many results obtained in this area are valorized in various ways in terms of transfer and ownership of technologies generated. This half-tone performance is accounted for by several factors that cannot be all ascribable to research structures.

For about ten years now, one can note the emergence of new stakeholders and new economic approaches in the agricultural research environment; hence the need for revisiting the schemes and the strategies of programmes in the institutions in charge of technology generation and transfer. Producers have got reorganized and they are now a force for debates. They express their concerns to research services, in clearer terms and more targeted at useful and useable technologies. The other stakeholders (processors, Agricultural Products Marketing Organizations, Consumers) are positioning themselves as unavoidable relays in the valorization and transfer of technologies generated by research services.

In this context, what is the best implementation strategy for ensuring the best conditions for transfering the many technologies that exist in the agricultural research area with a view to ensuring an increase in agricultural production and productivity for guaranteeing food security for the West and Central Africa's populations? In liaison with ICRISAT, INSAH, and ROPPA, the USAID Initiative is trying to address this problem.

The implementation mechanism of this initiative is chosen by the producer, depending on his/her habits and abilities to conduct thoroughly a cropping season. In other terms, he/she is the decision-maker regarding the choice of the size of the plot, the technical itinerary, and the crops to be farmed during the cropping season. The logic for the choice of this mechanism is the same in Niger, Senegal, and Burkina Faso which are the three countries retained for conducting this pilot phase during the 2002-2003 cropping season. Furthermore, this initiative was the opportunity to better make formal and revitalize the partnership relations between the three pillars of the technology transfer mechanism, viz : research, Extension, Agricultural Producers Organizations.

During this pilot phase, the crops chosen are the dominant ones in Sahelian

food diet and habits. For coarse grains, we have millet, sorghum, maize, and a legume - cowpea. Most of the varieties of these crops stemmed from research, and are already known to producers.

The pilot phase lasted for only one cropping season and cannot allow for drawing final conclusions at the level of the three countries involved. One can merely note trends that deserve to be tested for at least, two to three cropping seasons in order to be confirmed.

Nonetheless, three elements can hold our attention, viz : I) the interest shown by producers for the adopted approach which allows for freedom to choose, ii) the development of a partnership based on really mutual interests, and iii) capacity building in the areas of the seed sub-sector and a better organization of inputs stocks and agricultural productions management ■

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I. RECALL OF COMMITMENTS

The USAID initiative to support West African Countries in the mechanism for and the process of technology transfer and ownership by users, was the subject of a sub-regional consultation meeting in October 2001, in parallel with the Ordinary Session of the Sahel Institute's Technical and Management Committee (TMC). This consultation meeting brought together the following stakeholders :

- At the level of Agricultural Research : ICRISAT, INSAH, the Scientific Directors of nine (9) Agricultural research Institutions of the sahelian sub-region ;
- at the level of Agricultural Professional Organizations : the Chairman of ROPPA, the Chairman of Mali's Peasant Farmers' Organization ;
- At the level of development partners : the United States Agency for International Development (US-AID).

At the end of this consultation meeting, ICRISAT and INSAH were requested to develop, in close collaboration with ROPPA, research institutions, and extension structures, a work programme for the implementation of this initiative.

Owing to the late announcement of the initiative, a limited number of countries, representing the main agro-ecological zones, was retained for conducting pilot actions during the 2002-2003 cropping season.

The products or crops to be covered by this initiative are : coarse grains (millet, sorghum maize) and the subject theme "Mixed Farming and Livestock-breeding". It is worth noting that a high demand for including a legume crop - cowpea, in the mechanism was expressed during a consultation process country level). This crop was finally incorporated in the experimental mechanism for the 2002-2003 cropping season 2002-2003 ■

II. CONTEXT OF THE IMPLEMENTATION OF THE INITIATIVE

2.1. Established Facts

he initiative undertaken on this basis of the acknowledgement of failures relating to the ownership of technologies generated by the main beneficiaries (producers), proposed to explore the new approaches that would guarantee and facilitate a rapid and sustainable transfer. For this purpose, a mechanism composed of three pillars - research, extension structures and producer's Organizations, was put in place during the 2002-2003 cropping season.

2.2. Stakes

The established fact entailed important reforms in the programming and implementation mechanism of a great number of research institutions in the Sahel. These reforms being implemented in most of countries, take account of :

- the existence of development structures serving as relay between research services, extension services, producers Organizations, and users of research results;
- the existence of tools and mechanisms expected to ensure the best conditions for technology transfer ;
- the existence of producers' Organizations with the capacities and expertise for a better targeting of useful and useable technologies ;
- the existence of Producers Organizations' Capacities to identify accurate demands of technologies meeting the actual needs of users.

Mais il subsiste toujours des réticences dans la volonté de traduire ces éléments en actions concrètes dans la démarche des chercheurs.

However, there still exists some reluctance in the will to translate these elements into concrete actions in the approach used by researchers. One can also observe in the current situation that technologies and technology-transfer methodologies are available. The main issue still to be settled is to determine the major constraints to the transfer of available technologies and meeting a precise social demand.

2.3. Mission assigned to the Initiative

The mission assigned to the Initiative through the Sahel Institute and ICRISAT is to :

- identify target groups and the needs of those ;
- discuss with these target-groups the technological package (s) to be transferred during this short term; and
- get the opinion of these target-groups about the packages identified and discuss conditions for the sustainability of transfer mechanisms.

2.4. Target Groups of the Initiative

In the light of the above, the target-groups identified in the framework of this initiative are :

- NGOs and Peasant Farmers Organizations intervening or benefiting from the technologies to be transferred ;
- Research institutions generating technologies ;
- Extension and development structures serving as relays absolutely necessary for technology transfer ■

Persant Farmers' Association

Association of Women

Mixed Group (Men and Women)

III. IMPLEMENTATION MECHANISMS

From consultations initiated through contact-missions (in February-March 2002) in the three countries and the regional consultation meeting (in May 2002), a consensus was reached on :

- the framework for implementing the activities of this initiative : the farmer's plot the size of which is to be defined according to the natural and usual conditions of the beneficiary ;

- the technologies retained : they are the ones known to the beneficiary, and they are available and immediately transferable ;

- the technological package identified : it is the one identified by the beneficiary who wants to test it during this cropping season ;

- the intervention zones retained during the 2002-2003 cropping season : they are the ones corresponding to the agro-ecological zones identified by producers ;

- the choice of themes for building producers' capacities : that was done in liaison with producers, and on modules and themes defined in conjunction with them before the start of the next cropping season ;

- the selection of stakeholders in charge of the conduct of pilot operations ; that is also devolved upon local groupings, cooperatives, and federations ;

- research structures and extension structures intervening only as Advisory Bodies.

The initiative has put in place in all the countries, except for Senegal, a steering Committee composed of all parties involved (POs, Research Structures and Extension Structures) the representativity of which complies with the law of equity.

Field with Farmers' Practices

Field with Application of Improved Technologies

IV. RESULTS OF PILOT ACTIONS DURING THE 2002-2003 CROPPING SEASON

In relation to the beneficiaries, each country had the freedom to organize the cropping season according to the field-realities and the actual farming conditions of producers. However, for harmonizing procedures for collecting, analysing and interpreting results, two categories of activities were programmed in all the pilot sites during this cropping season : promoting activities for valorizing technologies and ,building the capacities of Producers Organizations.

4.1. Promoting activities for valorizing technologies

Technology transfer activities concerned millet, maize, cowpea ande integration agriculture and animal husbandry in Burkina Faso (Table 1) and millet, sorghum and cowpea in Niger (Table 3). Results analysis concerned agronomic and economic aspects of tested technology packages.

4.2. Agronomic Results Analysis

It is worth noting that in the presentation of agronomic results, Senegal is not mentioned for the mere reason that the document produced by the local point (CNCR) which is the entry-point of the Initiative in this country is a report hat remains incomplete, and consequently inappropriate for proper utilisation in conformity with the outline plan for drafting the final report on the cropping season. That reason is the cause of the delay in preparing the regional synthesis report. Therefore, the agronomic results analysis concerns Burkina Faso and Niger.

4.2.1. Trends of Yields Obtained

The levels of the yields obtained are very variable from one country to another, and from one site to another. The overall situation of yields is summarized as follows :

- In general, it is worth noting that the yield level obtained is above the average of expected results, especially for millet (SAE SABO/.Niger), sorghum (GUIDAN IDER/Niger) and Maize (Burkina Faso).

- Yield situations below the average as mainly due to :

  - Insufficient and erratic rainfall ;

- Diseases and attacks by parasites ;
- Insufficient mastery of production techniques.

For millet, the yield levels recorded have been very variable, depending on varieties on the GUIDAN-IDER site in Niger and on the CAÏN and Pobé-MENGAO site in Burkina Faso, and they are 30 to 40% lower than maximum yields generally obtained under traditional conditions in farmers' fields.

Regarding maize in Burkina Faso only, results indicate that organic manure/fertilizer combination allows for improving perceptibly the new yields. On some sites, this practice allows for increasing the yield level by 215% as compared to productions obtained on plots using exclusively mineral manure. This result shows the need to valorize options for mixed agriculture/livestock with a view to maximizing the reciprocal inputs of the two sectors.

The Bundles made by Farmers enable them to assess their yields (Millet and Sorghum)

4.2.2. Yield levels per country and special indications per site (tables 5 and 6)

Il It is worth noting that producers (in Burkina Faso and Niger) have their own methods for assessing yields. In Niger for example, the yield per hectare is expressed in number of bundles of millet or sorghum ears. In Burkina Faso, for the case of cowpea, a plate the content of which weighs about 1 kg is a reference measure of capacity for yields. For harmonizing the assessment of yields, it was requested to establish yield squares on all the sites, through counselling support from extension services.

4.3. Economic Analysis of Results

The various analyses show that all the farms covered by the initiative have recorded a positive gross margin. These results concern, once more, the sites of Burkina Faso and Niger. Senegal provided economic analysis results but

there is no indication about cultivated land-areas, crops dealt with, neither the precise sites where these results were obtained. For all these reasons, the results provided by Senegal have not been incorporated in this chapter.

A Farmer assessing his harvest before putting

Harvesting of Cowpea . Containers allow to assess the production of the field

4.3.1. Mechanism and Farm Size

The mechanism that allowed to work out the operating account of producers, is based on establishing a yield square in each farmer's field. The size of farms per household varies from 0.5 to 2ha for pilot production actions and from 1 to 5 ha for seed production.

4.3.2. Economic Characteristics

In both countries, for 60 to 70% of producers, it is deemed that the global gross margin varies from 140,000 to 270,000 Francs CFA. The benefits drawn from the utilization of the technological package vary form 16, 000 to 395,000 Francs CFA per hectare.

The levels of benefits are correlated with those of yields and gross margins (reaching at least 200,000 francs CFA) are recorded with the production level reaching at least 3.5 tons per hectare.

By way of contribution to the sustainability of the operation of this cropping season, the producers of the two countries intend to allocate the benefits made this year as follows :

- Repayment of inputs for the previous season up to the tune of 30% of the production ;
- Savings for purchasing inputs for the 2003-2004 cropping season up to the tune of 30% of the production ;
- Family consumption ensured by the remaining 40% of the production.

4.3.3. Specific Case of two crops in Burkina Faso : cowpea and millet

- *Case of millet*

  Despite the low yields observed, economic results show positive gross margins for nearly all the producers (95%), with benefits varying from 26,000 to 87,000 Francs CFA per hectare. On average, the results also show that 50% of producers make benefits ranging from 50,000 to 87,000 Francs CFA.

  Producers who opted for seed production during this cropping season made gross margins of about 1,000 to 172,000 Francs CFA per hectare. In the case of seed production, 50% of producers made benefits ranging from 54,000 to 172,000 Francs CFA.

Ears and Seeds of a selected milet variety

Case of Cowpea

The phytosanitary situation and the rainfall conditions that prevailed during this cropping season did not allow for reaching the expected results for cowpea. The yields obtained have been relatively low. Consequently, economic results are affected by this situation and 20 to 30% of producers are involved. The gross margins shown are negative (-36,000 Francs CFA) except for the ZIOU site, run by a female producer, which obtained an average gross margin of 83, 112 francs CFA.

Cowpea pods and Seeds

4.4. Building the producers' technical capacities and improving the intervention capacities of extension agents

The component on building the producer's technical capacities was achieved in the three countries (Burkina Faso, Niger and Senegal). In accordance with the capacity building axes indicated in the provisional programme, the training actions have been focused on :

- Building the producer's technical capacities ;
- Improving the extension agents' intervention capacities.

4.4.1. Building the Producers' Technical Capacities

This capacity building was done through a partnership that the Initiative established between the producers and the competent structures from NGOs, specific projects or research-development liaison units. Developing endogenous capacities is an important step in the sustainability of mechanism for the adoption and process of ownership of technologies developed and their proper utilization by beneficiaries. That is why 30% of the budget of the initiative (48,641,166/150,5220,000 Francs CFA) are allocated to the "Training" component.

As indicated in tables 2 (Burkina Faso) and 4 (Niger), the Initiative allowed to contribute significantly to building the producers' technical capacities. Thus, partnerships were established more directly between the three links of the rural world, viz : research structures, producers, extension services. These partnerships allowed for training more than 400 producers in the various techniques with a view to enhancing their knowledge in the areas of :

- Phytotechny (farming techniques) ;
- New techniques for applying organic manure and for acquaintance with the latter ;
- Adoption and utilization of small agricultural implements (HA TA hoe/Niger) ;
- Techniques for selecting inter-crops (cereal/legumes intercropping) ;
- Retraining in the manufacturing and maintenance of small agricultural implements (from local materials) ;
- Seed production techniques ;
- Training in community life and Organization's life (agricultural cooperatives, unions and groupings, etc...) ;
- Marketing and management upstream and downstream agricultural production (commercialisation of agricultural products, entering contracts with agro-industries, etc.).

Practical trainings were also organized in the form of commented visits. These inter-sites visits allowed producers to exchange their experiences on opportunities and constraints in the field of technological innovations valorization.

4.4.2. Improving the extension agents' intervention capacities

The initiative devoted a capacity building component to the agents of extension services with a view to improving and/or upgrading their potential of provision of services to producers. The training modules for these agents are mainly focused on very specialized themes ; viz :

- Models for designing extension data-sheets in relation to new technologies generated by research structures ;
- The re-adaptation of extension structures in accordance with the establishment of local collectivities (decentralization) with a view to making them lighter and operational ;
- Issues of coherence of interventions (quality and reliability of NGOs and of emerging Agricultural Professional Organizations, in the process of technology diffusion and transfer.

Over fifty extension agents from the two countries benefited from capacity building in the framework of the Initiative ■

V. MAIN LESSONS LEARNT FROM THE PILOT PHASE OF THE "TECHNOLOGY TRANSFER" INITIATIVE

5.1. Overall Lessons learnt

I Involvement of Agricultural Professional Organizations

The main objective of the Initiative is to make research and extension structures, in close liaison with Agricultural Professional Organization, test a new way of allowing for guaranteeing a mechanism for sustainable transfer and ownership by primary beneficiaries – agricultural producers, of technologies generated by research structures. This objective has been attained for over 60% in the two countries (Burkina Faso and Niger). Given that the consolidated report of Senegal is not available, it would be risky to express an opinion about this aspect. Nonetheless, during the mid-term evaluation carried out in September 2002 in Senegal, it was found out that the choice of POs was not made according to the criteria defined in the initial mechanism. The beneficiaries of the INITIATIVE funds are, in the majority, the supervisors or leaders of groups of producers already conversant with technology transfer issues. This situation may alter the results of the cropping season with yields per hectare that may be above the production potential of an ordinary producer.

I Involvement of Women

The involvement of women in the pilot actions of this Initiative was very much observed in Niger. In fact, on the SAESABOA site, women account for over 70% of producers involved. On the other hand, in Burkina Faso, the traditional and social environment (conditions for access to land) is not easily conducive of this integration if one considers the size of land-areas the producers decided to retain for pilot actions (1ha at least).

I National Coordination of the Initiative

In the two countries (Niger and Burkina Faso), a steering committee of the INITIATIVE composed of Research Structures, Extension Services and Producer's Organizations was set up. The membership of this committee is a model because it complies with the one third quota (1/3) per member; which allows to see to the balance of the representativity of members whilst usually the so much proclaimed participatory research does not give so much room to producers in such cases.

I Choice of the Experimental Mechanism, Crops, and Technological package

The choice of the mechanisms for the pilot actions of the initiative is left to the producer and the size of the plot (1 to 2 ha in general) is retained according to the capacities of the partner-producer, without constraints nor influence. This choice allows to have a situation reflecting the actual farming conditions of the producer. The entry products (crops) retained are the ones usually grown by the producer whereas, in general, research structures or extension services greatly influence the choice of producers in this area. Thus, these commodities, depending on agro-ecological zones (as indicated in the introduction and proposed by the Initiative) are generally the following :

- Millet, cowpea for the 300-400 mm isohyets ;
- Sorghum, maize and cowpea for more favourable isohyetes (600-800 mm).

The technological packages are chosen by the beneficiaries and the Initiative provides them with a support for purchasing inputs or small agricultural implements required for a proper application of this package. This freedom of choice of the technological package indicates a break away from the packages produced or introduced.

Cowpea Variety selected by a farmer

Farmer gazing at the ears of millet and for choosing Cowpea pods and Seeds

5.2. Specific Lessons Learnt

At the end of this pilot phase, one can modestly deem that the Initiative has brought an innovating vision :

I The very marked interest of producers and their Organizations was real

According to their own opinions, this initiative is a very interesting operation allowing, not only to enhance their professionalism for valorizing innovations for a more sustainable agricultural production but also, and mainly to strengthen their strategic capacities for (i) the improvement of endogenous reflection, (ii) the upstream and downstream mastery of production, (iii) the identification of buoyant and mobilizing initiatives for the members of peasant farmers' Organizations.

This interest of producers is mainly translated on the field by :

- The conduct of parallel operations from own funds by some peasant farmer's organizations (FEPA-B, FGENOIP/CPPAS in Burkina Faso and the Grouping of the GUIDAN-IDER Producers in Niger) for extending technology transfer activities, as currently designed, to other peasant farmers' organizations and groupings of producers (MULTIPLYING-EFFECTS) ;

- The anxiety shown by some sites not retained this year for integrating the mechanism next year if at all that continues (SNOW BALL EFFECT) ;

- Awareness-raising in producers on building professional capacities ;

- The development of cooperatives of capital goods, supplying services as well as the collection and marketing or agricultural products, the establishment of relations between peasant farmers (organizations and agro-industry partners) ;

- The valorization of technologies – a factor of improvement of diet conditions and of generation of income for producers.

I During the 2002-2003 cropping season, the rainfall conditions were not favourable on all the sites in the two countries (even in Senegal in the Sahelian part/Thiès, Diourbel). Despite that situation, the input of judiciously used technological packages enabled producers to make the difference, in terms of quantity of production and substantial increase in their income on the farms hosting the Initiative.

Finally, in the field of crop production, the availability of seeds of good quality remains essential for the implementation of technological packages. The issue of seeds of good quality remains a central issue owing to the

absence of true organizations specialized in production, distribution and marketing at the level of the three countries covered by the Initiative.

I Shortcomings of the Initiative

In the three countries where pilot actions have been conducted, some enthusiasm was observed in male producers and female producers for conducting test-operations because of the originality of the approach. Despite this fact, it is worth noting that there are still some weak points, viz :

- Inadequacy of producers' capacities for mastering the upstream and downstream production ;
- Weak negotiating skills of producers are a considerable handicap that may impede the progress to be made in the area of technology transfer ;
- The disorganization of extension structures due to the disengagement of the State that weakens the links between producers and these counselling structures ;
- The emergence, all over the place, of new stakeholders in the field of agricultural inputs management that does not guarantee neither the quality nor the reliability of products proposed to producers; which entails the mistrust of the latter vis-à-vis technological innovations ;
- And finally, the absence of coherent framework and appropriate institutional environment for strengthening the capacities of these agricultural organizations ■

VI. ELEMENTS OF CONCLUSION AND PROSPECTS

- The results recorded in the course of this phase present encouraging elements as regards the importance of innovation in the changing of the living conditions and life styles of rural communities ;

- regarding agricultural practices and, considering the low levels of the income of Sahelian agriculture, it is absolutely necessary to valorize the strategy for a better utilization of organic manure (the potential exists) combined with a reasonable dose of mineral fertilizer : such a practice may lead to convincing results in terms of improvement of production and income ;

- a better integration of agriculture and livestock should be exploited, given the potential existing in the Sahel in the field of livestock-breeding. This integration will contribute to a more important production of organic manure which is one of the sources of improvement of production ;

- a better development of partnership relations between producers and the agro-food sector (marketing, processing) may be a stimulating element for the improvement of production, the sustainability of the valorization of technologies and innovations in the area of agriculture ;

- a framework for a more appropriate strengthening of the capacities of Producers' Organizations upstream and downstream for preparing them to apprehend the market forces governing currently the global economy ;

- the organization of the seed sub-sector and the involvement of Producers' Organizations in the process of quality products production and distribution.

- It is worth envisaging the establishment of spaces (fora) for valorizing technologies and innovations with a view to sensitizing public powers on the importance of these tools in the improvement of the standard of living of rural populations and to contributing to poverty alleviation ■

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ANNEXES

Table 1 : **Promotion of Technology Valorization Activities (Burkina Faso)**

PO	CROPS	Technological Package
FNGN	**Millet** *Sown area :* 12 ha *Beneficiaries :* 28 Men + 8 women	• Drought resistant varieties and criteria of organoleptic and technological qualities : SOSAT, IKMP1, IKMP2, IKMP2 8201 • Observance of the application of farming techniques ; sowing, maintenance, millet/cowpea rotation cropping system • Fertilization management • Economic management • Seed production techniques
	Cowpea *Sown area :* 12 ha *Beneficiaries :* 88 Men + 20 Women	• High yielding varieties and resistant to diseases and to attacks by predators : KVX 616I; KVX396-4-5-2 D; KVX396-4-4 • Observance of the application of farming techniques : sowing, maintenance, phytosanitary treatments • Fertilisation management • Conservation techniques
	Agriculture-Livestock Integration 120 sheep (5 animals/workshop) *Beneficiaries :* 8 men and 16 women	Promotion of transfer of fattening ratios developed by INERA and valorizing the local food resources or available at the farm level. Rationing formulas : 1st formula : 30% natural fodders; 35% crop residues; 35% agro-industrial by-products; 2nd formula : 35% natural fodders; 30% crop residues; 35% agro-industrial by-products
FEPA-B	**Maize** *Sown area :* 45 ha *Beneficiaries :* 45 including 10 women	• Drought resistant varieties and criteria of organoleptic and technological qualities : MASSANGO and SR21; • Observance of the application of farming techniques : sowing maintenance, millet/cowpea rotation cropping system • Fertilization management • Economic management
	Cowpea *Sown area :* 15 ha *Beneficiaries :* 35 men + 10 women	• High yielding varieties and resistant to diseases and to attacks by predators : KVX6I-I KVX396-4-5-2D; KVX 396-4-4 • Observance of the application of farming techniques : sowing, maintenance, phytosanitary treatments • Fertilization Management • Post-harvest conservation techniques
FENOP/ CPPAS	**Maize** *Sown area :* 130 ha *Beneficiaries :* 43 Men and 22 Women	• Drought resistant varieties and criteria of organoleptic and ,technological qualities : FBC6, SR21, SBL, 34SP • Observance of the application of farming techniques : sowing, maintenance, millet/cowpea rotation cropping system • Fertilization management • Seed production techniques
	Cowpea *Sown area :* 65 ha *Beneficiaries :* 52 Men + 12 women * 7.5 ha seeds	• High yielding varieties and resistant to diseases and to attacks by predators : KN1, KVX414-22, KVX396-4-6-2D, KVX745-11P • Observance of the application of farming techniques : sowing, maintenance, phytosanitary treatment • Fertilization management • Post-harvest conservation techniques

Table 2 : **Building the Producers Organisations' Capacities (Burkina Faso)**

OP	Type of Training					
	Technical Capacities (TC)	Beneficiaries		Organizational Capacities (0C)	Beneficiaries	
		Men	Women		Men	Women
FNGN	1. Seed production capacities	28	08	1. Training + operation of agricultural Producers Organizations		
	2. Production techniques	28	08	2. 2. Introduction to negotiations with agro-industries	2 Unions + the commercial action committee of FNGN	
	3. Fodder mowing and conservation techniques	21	00			
FEPA-B	1. Production + post harvest conservation techniques for cowpea	80	40	1. Marketing issue	23	07
	2. Seed-production	80	40	2. 2. Training + operation of agricultural cooperatives	3 departmental unions	
FENOP/ CPPAS	1. Studies on agricultural products marketing	38	27	1. Training + operation of agricultural cooperatives	5 departmental unions	
	2. Seed production techniques for maize	15	12			
Extension (DVTT, DVRD and INERA)	Specialized production techniques (RD agents and specialized technicians	41 agents		0	0	

N.B. Training centered on three models :

1. Participatory approaches
2. Upstream and downstream mastery of agricultural production
3. Farms Economic Management
4. PO : Producers Organizations

Table 3 : **Promotion of Technology Valorization Activities (Niger)**

PO	CROPS	Technological Package
Grouping of the GUIDAN-IDER Producers	**Millet** *Sown area :* 36ha *Beneficiaries :* 291 Men + 7 women	1. Promotion of mineral manure utilization microdose technique (DAP) 2. Early varieties (drought resistance) : KHP, ZATIB 3. Phytosanitary treatments 4. Farming techniques : drought farming (utilization of the HATA hoe)
	Sorghum *Sown area :* 7.5 ha *Beneficiaries :* 11 Men 0 Women	1. Observance of the application of farming techniques : sowing, maintenance, sorghum/cowpea rotation cropping system 2. Varieties resistant to gall midge : IRAT 204, SEPON 82, MOTA MARADI 3. Promotion of utilization of mineral manure : microdose technique (DAP)
	Cowpea *Sown area :* 5.5 ha *Beneficiaries :* 17 Men/04 Women	1. Promotion of drought resistant and early varieties : DAN DAM, TV5, 78 2. Farming techniques : sowing, maintenance, millet/cowpea rotation systems 3. Phytosanitary treatments

- PO : Producers Organizations
- M : Man, W : Woman

Indications on the distribution of beneficiaries were not mentioned in the Synthesis Report of Niger but it is known that in the SAAE-SABOA grouping, women constitute the category which is most involved in the Initiative.

Table 4 : **Building the Producers Organizations' Capacities (Niger)**

PO	Type of Training					
	Technical Capacities (TC)	Beneficiaries		Organizational Capacities (0C)	Beneficiaries	
		Men	Women		Men	Women
Grouping of the IDER Producers	1. Techniques for micro-dose application (DAP)	NI	NI	1. Training in community life : • Knowledge of law relating to Associations and Rural Organizations • Drafting of statutes and rules of procedure of Associations	NI	NI
	2. Identification of fertilizers on crops	NI	NI	2. Financial and administrative management • Techniques for accounting and financial management • Techniques for stock management • Techniques for agricultural implements management	NI	NI
SAE SABOA	1. Training of local artisans in blacksmith trade (making and maintenance of the HATA hoe/and maintenance of small agricultural implements	NI	NI			
	2.Introduction to the utilization of the HATA hoe	NI	NI			

Table 5 : **Levels of yields obtained (Burkina Faso)**

Product Entry/Crop	Yield of traditional Practice (kg/ha)	Level of expected Yield + technical Package (kg/ha)	Level of Yield actually obtained	Explanations of variances
Millet	400-500	700-800	300-780	This counter-performance despite technological inputs (fertilizers, farming techniques, phytosanitary treatments) is due to insufficient rainfall, attacks by birds and diseases (mildew). Half of producers involved in the pilot actions within this 400-780 kg/ha bracket
Maize	1200-2000	2500-35 00	1800-4800	Whatever the site, the yields obtained by the majority of producers are in the 200-3600 kg/ha has bracket. The input of organic manure was decisive in the level of results obtained.
Cowpea	300-600	100-1200	400-780	This low level of yields (below the expected level) is due to a high attack by parasites, a deficit rainfall, and phytosanitary treatments carried out lately.

Table 6 : **Levels of yields obtained (Niger)**

Product Entry/Crop	Yield of traditional practice (kg/ha)	Level of expected Yield + technical Package (kg/ha)	Level of Yield actually obtained	Explanations of variances
Millet	500-700	650-880	850-970* 900-1882**	* The application of the DAP formula gives results which are not significantly different from the ones obtained with conventional formulas **When conventional fertilizer dose is applied, millet behaves better than when the DAP formula is applied on the two sites : GUIDAU IDER and SAE SABOA
Sorghum	500-700	650-800	1200-1470	Sorghum is grown only in GUIDAN-IDER. Its yields are higher than normal level when the DAP formula is applied, and with the MOTA variety of MARADI. In the two cases (conventional formula and DAP formula) the other varieties have a behaviour below the expected results
Cowpea	400-700	600-850	700-950	In the framework of the initiative, cowpea was grown as a pure stand crop on the GUIDA-IDER site, with a local variety DAN Ila that behaves better than improved varieties at the phytosanitary and yield levels. The SAE SABO site grows this crop in association with millet and the results are slightly below the average expected from a local Dan Dam variety

ACRONYMS AND ABBREVIATIONS

AGROSOC	Major Programme on Socio-Economic Research
CILSS	Permanent Inter-State Committee for Drought in the Sahel
CNCR	National Consultation Council for Rural Populations
CTG/TMC	Technical Management Committee
FEPA-B	Federation of Agricultural Producers
FENOP/CPPAS	National Federation of Producers' Organizations
NRM/PS	Natural Resources Management/Production Systems
ICRISAT	International Crop Research Institute for Semi-Arid Tropics
INSAH	Sahel Institute
NGO	Non-Governmental Organization
PO	Producers Organization
ROPPA	Network for West Africa Peasant Farmers and Agricultural Producers Organizations
USAID	US Agency for International Development

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