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**Project SUSTAIN Reconnaissance Visit to Swaziland  
February 13-18, 1989**

Team Members

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Report to the Project SUSTAIN Board of Directors  
on a Reconnaissance Visit to Swaziland, February 13-18, 1989

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SUMMARY

The Project SUSTAIN reconnaissance team was requested to address three specific issues,

- The marketing of sprouted sorghum as a weaning food additive;
- the use of blended flours to improve nutrition;
- the potential for expanding the food processing industry in Swaziland.

In addition the team was requested to react to a new project "Commercial Agricultural Production and Marketing."

The team agreed that the concept of using an amylase to hydrolyze corn starch, thus producing a "thinner" porridge that requires little or no further dilution and therefore has a high caloric density, is well worth pursuing. However, the product needs refining and many questions that would affect sales must still be answered before the product can be marketed. Project SUSTAIN will provide information on purified amylase sources and the results of similar studies in Nigeria and Tanzania involving the use of malt to thin porridges. Once the integrity and performance of the additive is established SUSTAIN will assist in developing a protocol to reach the marketing stage. If requested, a short-term consultant could also be provided once this marketing stage is reached.

The blended flour project does not appear to have reached the point where an assessment of viability can be made. If Ms. Silalula, the project leader at the University of Swaziland, could provide a clearer definition of the project, SUSTAIN will provide advise or, if requested by USAID, will send a short-term

consultant to sort out the issues and determine project feasibility. In any event SUSTAIN will provide Ms. Silalula with additional information on blended flours.

The team strongly endorses USAID's emphasis on small scale agricultural production and agricultural businesses. If requested, SUSTAIN will be pleased to assist in monitoring the business aspects of the "Commercial Agricultural and Marketing Project" by having a member of the Project SUSTAIN Board of Directors participate in CAMP reviews.

At our debriefing we were asked if we could send a consultant to identify budding food processing businesses that could benefit from USAID assistance. We suggested that if USAID could carry out a rough preliminary screening of existing small enterprises, SUSTAIN could then provide a consultant who could evaluate these companies and identify those that appear to have a high probability of success.

A description of planned Project SUSTAIN follow-up actions is given in Appendix I.

## INTRODUCTION

Project SUSTAIN was invited by USAID/Mbabane to send a reconnaissance team to Swaziland. The purpose - to explore three issues.

- The marketing of sprouted sorghum as a weaning food additive;
- The use of blended flours to improve nutrition;
- The potential for expanding the food processing industry in Swaziland.

In addition, the team's conclusions and recommendations would serve as resource material for the Country Development Strategy Study (CDSS) currently being written.

## Background

The marketing of sprouted sorghum: The Swaziland National Nutrition Council (NNC) has underway a weaning improvement project funded by UNICEF/Swaziland and USAID. The rationale - the high infant mortality rate in Swaziland. Somewhere between 11%-15% of children die in the early stages of life. This high death rate is in part attributed to malnutrition induced by improper weaning practices. In particular, the use of a diluted maize porridge as the primary weaning food that is very low in caloric content.

One facet of the weaning food project is to increase the

caloric content of the porridge by the addition of ground germinated sorghum (malt). The malt enzymes split the carbohydrate chains to produce a thinner porridge with little if any dilution. This thinner porridge can be readily eaten by small children. The NNC decided that the germinated sorghum should not be given away, but should be sold through commercial channels. Swaziland Milling, the company that produces the malt, was a likely candidate to also market the product. The reconnaissance team was requested to assist the NNC in developing a marketing strategy that would persuade Swaziland Milling to undertake the task of promoting and marketing of the product.

#### Blended Flour Products

The University of Swaziland is exploring the use of blended flour products to improve nutritional status. The Project SUSTAIN team was requested to assess the feasibility of producing and marketing such products in Swaziland.

#### Expansion of Food Processing

"Commercial Agricultural Production and Marketing" is a new USAID project that provides assistance to the Government of Swaziland. The purpose - to stimulate an increase in small scale commercial agriculture production and agricultural businesses. Through a variety of incentives USAID and the GOS plan to (1) encourage existing business to explore and identify markets which allow for increased farm production, and (2) promote investments in new agro-businesses which will increase productivity of, and add value to, agricultural commodities.

The SUSTAIN team was requested to (a) identify the technical problems faced by the local industry, (b) assess the level of sophistication of food processing, (c) identify barriers, including GOS policy, that limit expansion of small enterprises, (d) recommend the types of technical assistance and training that would be beneficial to small food processing companies, and (e) recommend new product lines that could be produced using existing facilities.

#### Meetings and Visits

The team arrived at Manzini Airport on Sunday, February 12, 1989. We were met by Mary Pat Selvaggio, Deputy Regional Director for Health, Population and Nutrition (HPN)/USAID. We discussed the proposed itinerary and suggested that the team travel as a unit rather than split into two groups as originally planned.

#### Monday, February 13

At our first meeting we met with the USAID Director and his

staff. Participants included Roger Carlson, Mission Director; Alan Foose, Chief HPN; Mary Selvaggio, Deputy HPN; Joan Johnson, Program Officer; Elizabeth Martella, Agricultural Development Officer, (ADO); Brian Gama, Project Manager; and Bruce Lowry (embassy).

Roger Carlson reviewed mission activities and shared some of his views. In a sense, demographics drives the AID program. Swaziland's population is very young. Approximately 60% of the population is under 20 years of age. About 12,000 young people enter the labor force each year while only 2500 new jobs are created. If this pattern persists, it could lead to economic and political upheaval. Thus, the major USAID thrust is to promote activities that will create jobs. The result has been a shift in priorities. During USAID's 20 years in Swaziland, the emphasis has been on training public employees in the U.S. Now the emphasis is on creating new jobs by expanding the role of the private sector particularly in agriculture and agribusiness. The director also pointed out that although Swaziland welcomes outside investment U.S. investment is small. In summary, the goals for the future are clearly to affect public sector policy issues and to encourage greater Swazi government involvement in expanding the private sector.

- Following our briefing, the team met with Chris Mkhonza, the Principal Secretary in the Ministry of Health (the Principal Secretary is the second ranking officer in a ministry). Mr. Mkhonza recently moved from the Ministry of Commerce. We discussed exports, agricultural production and the land tenure system.

- Our next meeting was with Mr. Frank Buckham, Principal Secretary of the Ministry of Agriculture, and his staff. The meeting was followed by lunch, hosted by Harry Johnson, Deputy Director/USAID. Guests included Chris Mkhonza, Frank Buckham, Ms. Nomathemba Dlamini, Director of Research and Planning in the Ministry of Agriculture, and Mr. Abner Khumalo, Acting Principal Secretary in the Ministry of Commerce. The lunch was helpful in continuing our get-acquainted process.

- Our afternoon meeting at AID with Agrifood representatives was most enlightening. The mission brought together government officials and representatives of the private food industry (the list of invitees is given in Appendix II). This face to face meeting of government and industry representatives was a first time occurrence at USAID. The meeting was animated and interesting. Not only did each person discuss his or her function or business interest, but there were some frank exchanges between government and private enterprise attendees concerning obstacles attributable to government policies.

At the close of the meeting the team had gained some

relevant insights into how pricing policies affect profit margins, on the activities of the Dairy Board, the state of poultry productions, etc. The team also had its first exposure to several people we were to meet again - Sister Judith, a dynamic personality who was instrumental in developing the Manzini Industrial Training Center (MITC); John Masson, managing director of Swaziland Milling, the potential producer and marketer of the porridge malt additive; Richard Hully, general manager Swaziland Fruit Cannery; and Derek Von Wissel, former Minister of Commerce, Industry and Tourism.

#### Tuesday, February 14

- In the morning we met Scott Reid and Peter Capozza of Khalipha Investments and later with Stephen Potter of Swaziland Industrial Development Corporation (SIDC). These companies promote investments, conduct feasibility studies and serve as investment advisors. The meetings provided good background information and supplemented the insights gained the previous afternoon at the meeting with Agrifood representatives.
- In the afternoon we visited the ministry of Agriculture where we met with several members of the National Nutrition Council (NNC) - Christabel Motsa, Sr. Home Economist, Ministry of Agriculture; Angela Mbuli, Project Assistant UNICEF, and Juliät Aphane, Nutritionist, Ministry of Agriculture. A discussion of the weaning food program indicated that some preliminary steps, involving packaging, acceptance and safety, should be taken to ensure that a marketing strategy would be successful.

#### Wednesday, February 15

- John Nelson met with John Masson, General Manager of Swazi Milling. The purpose - (a) to discuss the business aspects of marketing the malt additive, and (b) to observe how the germinated sorghum was prepared.

##### (A) Marketing the Malt

When marketing of the germinated sorghum was discussed with John Masson of Swazi Milling he expressed little if any interest in either helping develop a marketing strategy, or in mounting a marketing campaign for the malt. However, he did express interest in distributing the product in Swaziland. The possibility of selling the malt in South Africa was also discussed. Masson did not consider that a particularly viable option.

##### (B) The Malting Operation

The malting operation takes place outside the Manzini plant. The process includes the following steps:

1. Sorghum is emptied into two large concrete tanks approximately 12 feet square and about ten feet deep. Water is added and the sorghum is soaked for about three days.
2. The product is transferred from the soaking vats onto a concrete slab and raked into piles approximately four feet wide and 70-100 feet long. These piles are covered with black plastic and allowed to germinate in the open air. Masson states that there is quite a bit of difference in enzymatic activity depending on whether the days are sunny or rainy. After three days the sprouted material is uncovered, shoveled into wheelbarrows, and hauled to the drying building. The material is dried for approximately three days. We did not see the drying building, but apparently it has a slotted floor to allow air to circulate slowly. Considering the very humid summers in Manzini, three days to dry a batch of the germinated sorghum is understandable. There was very little attempt to control sanitation, although all operations were carried out in the open. Neither did it appear that the raw sorghum went through any substantial cleaning procedure prior to the soaking of the grain. Nor was there any concern that aflatoxin might be produced during the malting process. It is evident that this sorghum would not be of the quality to use in a baby food enzyme preparation.

For the sorghum malting operation red sorghum is used; it is preferred to white sorghum which is also available. However, some literature references indicate that white germinated sorghum may have a higher enzymatic activity. The mill sells the malt to large wholesalers who in turn supply the retailers throughout Swaziland. An interesting aside - The production of home brew is a Swazi home industry!

Sprouted sorghum is not the company's major product. Swazi Milling's main products are derived from corn and include:

1. A sifted variety where bran is removed. In this production scheme, there is a 15% loss of raw corn.
2. An unsifted variety where bran is not extracted. There is about a 5% loss of raw corn.
3. A highly refined product of a different particle size called legugu. Its production entails a 17% loss of raw corn.

The mill grinds approximately 40,000 tons per year, and most of the output is produced from September to February. Beginning in February, the output is reduced substantially because corn is available from the current harvest and consumers harvest and grind their own corn rather than purchase the milled products.

Masson advised that the products are packaged in 1, 2-1/2, 5, 12-1/2 kilos and 250-gram packages. Swazi Milling also makes Milky Day, a full cream-dried milk product that is sold to compete with Nespray. The Milky Day packaging material looked like a fairly good quality of polyethylene (possibly three or four mils) with a four-colour printing job. This material is about five times as expensive as ordinary thin polyethylene packaging.

- The team then visited Swaziland Fruit Cannery (Swazican). Richard Hully the general manager guided us through the operation. Swaziland Fruit Cannery is the canning industry. This one company processes about 40,000 tons of pineapple, 15,000 tons of grapefruit, and 6,000 tons of oranges annually. About 98 percent of production is exported. The company's products are available under its own Swazi label or those of the buyers. The bulk of the production is exported to EEC countries. The company has about 1600 hectares planted to pineapple. Two hundred-eighty hectares are owned by the company, the rest is leased from individuals or the Swazi nation. Expansion of production is limited by the availability of land for growing fruit in commercial quantities. The company products include pineapple slices and pieces, crushed pineapple, pineapple juice and frozen and preserved pineapple concentrates. Citrus products include grapefruit and orange segments, frozen and preserved concentrated juices and jams and marmalades. Animal feed is also prepared from the peel and other pineapple and citrus by-products. Citrus fruits are processed during May-August when there is no pineapple production.

Swazi Canning is the third largest employer of labor in the country. Almost all workers are women. In viewing the operations the team concluded that the plant was well run and appeared to be a safe and sanitary operation. Hully observed that the women considered permanent employment at the cannery a highly prized job; not only were salaries higher than the minimum wage, but health care was provided to the employee and her family. Meals could be purchased at a company run canteen.

- In the afternoon we visited the Manzini Industrial Training Center (MITC). The team was guided through the Center by Father Larry McDonnell, the founder of the Center and Sister Judith Ellen, the energetic promoter of the operation.

MITC provides two years of formal on the job training to about 200 school drop outs ages 18-25. Crafts taught include carpentry, construction, metal works, auto mechanics, printing, sewing and upholstering. Qualified students are taught marketing and business skills.

The goals are to provide skills that can produce employment

and to encourage the establishment of small local businesses. MITC also supports agricultural projects.

The team was particularly interested in a pilot food processing operation under construction on the premises by MITC construction trainees. The plant will process locally produced agricultural products. Canning of vegetables would appear to be unique to Swaziland since neither Swaziland Cannery, nor to our knowledge any other facility in the country cans vegetables. An interesting objective of the pilot operation is "to prove that a small food processing unit, using local fruits and vegetables and serving the local market can be run successfully, and thus encourage other similar enterprises to be started in the kingdom." The primary objective is "to create an income, generating project which will provide unskilled employment for approximately 40 young people (mostly women)."

At the time of our visit construction of the processing building was well under way and the installation of equipment was about to begin. Agricultural suppliers have been identified and farmers are being instructed on crops to grow and to stagger production so that vegetables can reach the plant in timely fashion.

MITC appears to be an ongoing operation that could be duplicated (if there are clones of Sister Judith) in various parts of the country.

- On the return from MITC the team stopped to visit a food warehouse and a supermarket. South African manufactured products dominate. Products appeared to be safe, clean, well packaged, etc. Prices in U.S. dollars approximated those in the U.S. It would seem that only the more affluent could frequent this supermarket. The quality of the products sold presents a challenge to would be entrepreneurs. The population is accustomed to quality products and any locally produced items, if they are to sell, must be equally attractive.

#### Thursday, February 16

- The team, accompanied by Christabel Motsa (MOA) and Juliat Aphane (MOA), drove to the Women's Development Center. The center (one of four) is about an hours drive from Mbabane and provides training in sewing, knitting, weaving, leather working, batik and dying, food drying, etc. Once trained, a woman can borrow money to purchase, e.g. a sewing or knitting machine, and set up her own business. The proceeds pay back the loan and provide a source of continuing income.

- Food drying is essentially solar drying. Meats, vegetables, etc. are dehydrated using a variety of solar dryers, built on the premises. Other village level technologies are being introduced.

The center produces corn shellers, cooking stoves, ceramic containers for collecting rainfall, etc.

- The team then visited a local facility for making and packaging honey. The operation is managed by two former Peace Corps Volunteers, Peter Bechtel and Kathy Gau. They have established a bee school where farmers learn to build hives and collect the combs. The operation is primitive, but effective. The honey is expelled from the comb, filtered, bottled in glass containers, labelled and sold as citrus honey (orange trees are grown in the area). In addition, beeswax is recovered. We promised to provide information on food drying, home canning and the use of bicycle power.

- We then visited the University of Swaziland where we met with Ms. Sabina Silalula, a senior lecturer at the University and the person interested in composite flours. Her primary interest appeared to be in growing millet and sorghum. Millet and sorghum do well in semi-arid regions and in times of drought could substitute for corn. It was not clear how this tied in to composite flours. We also met with a horticultural faculty member and an animal husbandry person. One of us (Denton) said that he would provide a variety of seeds for field testing. Another (Hornstein) agreed to provide additional information on composite flours.

- The team then proceeded to the Malkerns Agricultural Research Station where we met with Christopher Mkwanyana, Chief Research Officer. Our visit was brief; it was past closing time when we arrived. We did learn that the major objective of their research is to solve farming problems facing small scale farmers on Swazi Nation land. Specific crops under study are food grains, grain legumes, oil and fiber crops and root crops.

- En route we stopped at several small stores, a far cry from the supermarket in Mbabane. Choice is limited, products are sold in small quantities. One interesting observation, mothers apparently send a child to make very specific purchases. If the sprouted sorghum additive is to be sold throughout the country any promotional efforts must also be tailored to the purchasing patterns in rural regions.

#### Friday, February 17

- We met at Juliat Aphane's home to witness a demonstration of the effectiveness of the malt additive in thinning porridge. The results were rather poor, again indicating the need to standardize enzyme activity. A discussion of the recommendations the team would make concerning the marketing of the additive followed.

- The team debriefing was held at USAID. Attendees included

Roger Carlson, Harry Johnson, Alan Foose, Mary Selvaggio, Elizabeth Marbella, Brian Gama, Allan Reed, Joan Johnson, Leticia Diaz and Alberto de Gamboa. The U.S. Ambassador to Swaziland, Ms. Mary Ryan, was also present.

The team recommendations concerning the weaning food additives, composite flours, and an approach to expanding small food processing enterprises are presented in the final section of this report.

We had lunch with Derrick Von Wissel and Harry Johnson to discuss Derrick's plan to establish an umbrella organization of food associations in Swaziland.

Saturday, February 18

We departed for the U.S.

## **Conclusions and Recommendations**

### **I. Weaning Food Project**

The primary objective of the Project SUSTAIN team visit to Swaziland was to assist the National Nutrition Council in devising a marketing program for the use of sprouted sorghum (malt) as a weaning food additive. And, hopefully to persuade the Swazi Milling Company to market the product. The concept was that Swazi Milling would provide funds for the marketing study, and would subsequently distribute and carry on a profitable business selling packets of a malted sorghum for use by homemakers in preparing a thinned maize porridge weaning food of high caloric density.

- The following four basic steps must be thought through before finalizing a program for the introduction of a malt supplement for use in weaning foods in Swaziland.

1. Business strategy
2. Product integrity/performance
3. Packaging
4. Marketing

### **Business Strategies**

The big question under business strategy is whether this product should be designed as a business for profit or if it should be a not-for-profit intervention program. Because of the potential market size in Swaziland, there is some question whether this one product represents a profitable product idea or even if it is a logical addition to the "mealie meal" business of the Swazi Milling Company.

### Product Integrity/Performance

The product, as it exists today, is not completely formulated. The concept of using an amylolytic enzyme to modify the corn starch to produce a thinner porridge that requires little or no further dilution and therefore has a high caloric density is a viable concept. We seriously question whether the current rendition of the amylase source is adequate for the job. More specifically, we feel that the enzyme activity from batch to batch of malt is not consistent enough for this application. The product must also be more sanitary. The Project SUSTAIN team feels that there still may be some questions about how the product is used that should be answered by further testing in the home.

One specific question is: How does the enzyme treated porridge prepared early in the morning hold up during the day? This question is pertinent, since apparently the one batch prepared in the morning is fed to infants throughout the day. Another is the acceptance of the product by the mothers, since the additive alters taste and color. We were told that one test indicated that the product was acceptable. This should be fully confirmed.

### Packaging

Packaging strategy relates to the overall marketing strategy, some key issues under packaging include comparisons to be made with existing commercial products; i.e. Nestum and Nespray. To compete with existing brands, there is a need to differentiate this new product. Some of the methods for differentiating could include: (a) lower cost, (b) promotional containers, (c) a spokesperson for the products, etc. The package also relates to the salability of the product. For example, if a promotional container was provided, then it might be possible to use lower cost packaging material for 250-gram packets to be sold as refills. Otherwise, we would most certainly have to use a higher quality packaging material to connote quality. Since the product must be differentiated from the use of malted sorghum to prepare home brew, packaging is a way of differentiating the weanling food malt from the home brew product.

Finally, many questions that would affect marketing must be addressed. The following lists some of the issues and areas of concern:

1. Should the product be distributed through the normal retail channels, or should it be presented through clinics, or both?
2. How should the product be differentiated from beer

- malt? Color, name, package, or a combination of these.
3. The product must have a shelf life of at least six months. Does it?
  4. The product, after further revision, should be evaluated in a test market.
  5. Who makes the purchasing decision in the home? How do mothers decide on what to purchase? And what sources of information can be used to change current purchase habits?
  6. What is the role of caretakers in purchase decisions? They may be the target market.
  7. The reaction to price. An intent-to-buy study should be made to further understand how the purchasing decision is made.
  8. Is the product being properly used? Can one modify the usage behavior to make better use of this product concept.

Our presentation included a diagram of the product development and life cycle curve showing the expenditure of dollars as a function of time. The initial phase is all outgo rather than income. It would be useful to find a donor (perhaps Swaziland Milling) to fund this phase. Although the project team in Swaziland felt that they were ready to go to market, we believe the audience was convinced by our presentation that they are about at the half way point in determining how to market the product. They are through the first product testing stage in the home and have yet to go through serious prototype testing and design of the final product, including the process, package, and delivery system. It is necessary to carry on the test long enough to not only obtain the result of initial trial responses, but to determine the repeat purchase cycle. The weaning food products currently sold are well regarded but expensive. The high esteem held for the Nestle products could substantially affect the purchase patterns.

**Project SUSTAIN** agreed to look at alternative ways to produce an appropriate product. We will determine the level of enzyme activity in the current product, sources of purified enzymes and their cost, the cost of adding vitamin and mineral enrichment as well as possibly using a protein source carrier. We will provide sufficient purified enzyme to permit determination of appropriate quantities to be added and to use in acceptance studies. Project SUSTAIN will also obtain information concerning the studies in Nigeria and Tanzania. In addition, once the integrity and performance of a suitable additive is established, SUSTAIN will, if requested, assist in developing a protocol to reach the marketing stage. If requested a short-term consultant could also be provided once the marketing stage is reached.

## II. Composite Flours

The meeting with Ms. Sabina Silalula, the person at the University of Swaziland concerned with blended or composite flours, did not provide any evidence that the project had reached the point where an assessment of viability could be made. We did provide some information on composite flours and we will provide additional information. However, it would be most helpful if Ms. Silalula could provide us with a clear definition of her project. We would be in a better position to help.

Assuming that USAID is interested in a composite flour project, SUSTAIN will be pleased to assist either by providing advise or sending a short-term consultant to sort out the issues and determine project feasibility.

## III. The Potential for Increasing Agricultural Productivity and Expanding Food Processing

Any recommendations must take into account the basic constraints that tend to inhibit expansion of Agriculture and agribusiness in Swaziland.

- Swaziland is about the size of New Jersey, its population is about 700,000. Producing for the local market limits growth since the potential market is small. Large operations can only exist if they produce for an export market.

- There is no food processing industry to build upon. The major industries are pineapple growing, sugarcane production and a fairly substantial forest industry. From a food processing stand point, there is one major cannery of fruit and juices, Swazican, which the team visited. There is one beef slaughtering plant which we were told was of poor quality. And, the poultry grown in Swaziland apparently is either sold alive or exported to South Africa for processing.

- There is a lack of the skilled labor and management essential for creating viable business.

- The Republic of South Africa (RSA) dominates the Swazi economy. Eighty-five percent of Swazi imports are from the RSA. Swazi produced items must compete against name brands and highly sophisticated products.

- The customs union among Swaziland, Lesotho, Botswana and RSA can mean that there is no protection against RSA companies who can, if they wish, destroy by dumping any "upstart" Swazi entrepreneur.

- Wealth is measured in terms of cattle owned. Animals are slaughtered only on special occasions. As a result, the land is overgrazed and poorly utilized.

- Over half the land is Swazi National Land. This land supports over 40,000 small-scale farmers on homesteads that average three hectares. As a measure of productivity these farms produce only 4 percent of the GDP. The more fertile land is in the hands of the King and in private hands.

-The farmers who live on these small farms usually have at least one member of the family that works outside the farm. The corn we observed growing on these farms - corn is grown universally - appeared to be of very poor quality. There apparently is no source of credit for the farmers and because of the poor productivity of the land they are unable to grow much more than corn and a few vegetables.

- Swazi nationals do not appear to be entrepreneurialy oriented.

Keeping in mind the goal of job creation and accepting the reality of these constraints, **the team strongly endorsed USAID's emphasis on small scale agricultural production and agricultural business as evidenced by the "Commercial Agricultural and Marketing Project" (CAMP). If requested, SUSTAIN would be pleased to assist in monitoring the business aspects of this project by having a member of the Project SUSTAIN Board of Directors participate in CAMP reviews.**

The team also believes that it would be useful to develop selected high value products for overseas markets and to encourage foreign investors to create export oriented food processing industries based on contract farming involving small scale farms.

Examples of the types of ongoing efforts that should be encouraged and of new efforts that can be initiated follow.

- Encourage and support MITC to expand its entrepreneurial training program and identify and support other ongoing training avenues that teach business skills.

- Encourage the development of an export vegetable canning industry. For example, contract tomato growing in cooperation with small scale farmers could be introduced and the tomatoes processed for the export market by a company such as Campbell Soup or Heinz. (This is an illustrative example and is not to be

construed as a recommendation.)

- Develop an export market for highly specialized crops that could command a premium price based on quality. As an example, the team at one point suggested cultivation and processing of raspberries. If high quality raspberries could be grown and marketed under a Swazi label with the message that Swazi products are the best, it might be possible to create a lucrative market niche for Swazi gourmet foods.

-In keeping with Mr. Carlson's suggestions, identify budding food processing businesses that could benefit from increased funds and training. There are several small industries developing: honey production, poultry raising, fish farming, solar drying, and jam production. However, these appear to be in their infancy, but some of them do appear to offer possibilities. For example the small honey processing and packing enterprise at the LFT Bee School could be given financial assistance, their technology improved and the enterprise duplicated in different regions of the country. Again, the concept of exporting the product as a gourmet product, well packaged, etc. could be explored.

- At the briefing we were asked if SUSTAIN could send a consultant to identify similar innovative enterprises. Since SUSTAIN consultants are sent for 1 to 2 weeks, we suggest that USAID do a preliminary screening of existing small enterprises and identify those that appear to be promising candidates for receiving assistance. **If requested SUSTAIN would then provide a consultant who could evaluate these companies and pinpoint those that have a high probability of success.**

- Produce value added products based on agriculture. For example, poultry raising, if expanded, could also spawn an animal feed business. Soy would be a basic ingredient. Soy production could provide a cash crop and eggs and processed chickens could be sold domestically and perhaps exported to the RSA.

- We have attempted to present our comments concerning the potential for increasing agricultural productivity and expanding food processing into a convenient framework. This is presented in Appendix II.

### Some Stray Thoughts

1. The way to capture a market is to have the best quality at the lowest price, and delivered on time as needed.

2. In developing a product consider the entire food chain: from the germ plasm (egg, seed) to the consumer's stomach.
3. In a new venture allot 5 years from concept to commercial product.
4. Remember, some exploratory projects will fail.
5. With the above in mind, we believe it should be possible to support the development of small food processing industries for the local market. With some trepidation we suggest the following product possibilities: locally produced bread and cookies, ready cooked meals, honey production, small scale processing (jellies, jam, sauces, sausages), and poultry. One might also consider hydroponics as a labor intensive agriculture.

Our parting thought, be action oriented; study is okay, but there comes a time to act.

#### Some Final Observations

It seemed to us that there is a will and a drive on the part of the individuals we met representing the U.S. Government, the Government of Swaziland, and the private citizenry in seeing a rapid improvement in the economy of Swaziland. A word of caution

- this may not happen soon regardless of the amount of money poured into the country. We believe that in addition to major development programs a more gradual approach to improving the economy by targeted assistance may be useful. For example, a few thousand dollars targeted toward the honey project or to the women's development project or to the Manzini Industrial Training Center could yield visible and immediate benefits.

In the course of our visits one official made a rather interesting and insightful statement. Perhaps the words are not exact, but the thought is clear - "we have been training people to work in government rather than training them to work in small manufacturing companies, both are at least equally important to the economy." We agree and we came away quite optimistic about the contributions that small-scale improved agriculture and businesses could make to the future of Swaziland.

We are grateful to USAID staff for their assistance in making our stay interesting and, hopefully, productive. We also thank Mr. Roger Carlson, Director USAID, for arranging a lunch where we had the opportunity to meet informally with government

officials and agribusiness executives. Our thanks too to Mr. Harry Johnson, Deputy Director/USAID, for hosting an evening get-together and dinner, where we had an opportunity to meet informally with USAID staff. We are also most appreciative for Ms. Mary Pat Selvaggio's assistance. She shepherded us to various meeting and plant visits, and in general kept us out of mischief.

## APPENDIX I

### PROJECT SUSTAIN FOLLOW-UP ACTIONS

#### Weaning Food Project

1. Germinated sorghum produced by Swazi Milling is being analyzed for enzymatic activity.
2. Source of purified amylases have been identified. Price quotations have been requested.
3. Sufficient quantities of purified amylases are being provided to (a) determine quantities to be added to porridge, and (b) to conduct consumer acceptance trials.
4. Reprints of papers concerning the use of germinated cereals to "thin" cereal based weaning foods have been sent to USAID.
5. Once the integrity and performance of the "additive" is determined SUSTAIN, if requested, can provide a consultant to assist in developing a protocol for steps to be taken prior to the marketing stage.
6. Simultaneously, a short-term consultant may also be provided to develop the marketing scheme.

#### Composite Flours

1. Literature on composite flour has been sent to Ms. Sabina Silalula at the University of Swaziland.
2. Ms. Silalula has been requested to provide a clear description of goals and workscope for her composite flour project.
3. Once obtained SUSTAIN can assist on "next steps" by providing expert advice or a consultant to help sort out the issues and determine project feasibility.

#### The Potential for Increasing Agricultural Productivity and Expanding Food Processing.

1. If requested, SUSTAIN will be pleased to assist in monitoring the business aspects of the "Commercial Agricultural and Marketing Project" by having a member of Project SUSTAIN's Board of Directors participate in reviews.
2. Once small-scale innovative food processing companies are identified, SUSTAIN, if requested, will provide a consultant

to evaluate these companies and pinpoint those that appear to have a high probability of success and could benefit from USAID assistance.

Miscellaneous

1. SUSTAIN will provide information on food drying, home canning and the use of bicycle power to the bee school.
2. SUSTAIN will provide a variety of seeds for field testing to Swaziland University.

APPENDIX II

AgriFood Invitees to USAID Meeting

Monday, February 13, 1989

	<u>NAME</u>	<u>TITLE</u>
1.	Sis. Judith Ellen Dean	MITC Administrator
2.	Mr. John Masson	Managing Director Swaziland Milling
3.	Mr. Richard Hully	General Manager Swaziland Fruit Cannery
4.	Mr. Tony Bosman	Managing Director Tinkhukhu Chicken Farm
5.	Mr. Simon Pefile	General Manager Swaziland Brewers
6.	Ms. Christabel Motsa	Principal Home Economics Officer
7.	Mr. Joe Van Der Walt	General Manager United Plantations
8.	Ms. Sabina Silalula	Senior Lecturer, Uniswa (Blended Flour Project)
9.	Mr. Michael Tomlinson	PRI Swazi Businessman
10.	Mr. Dale Allen	Commercial Farmer Food Processor
11.	Mr. Donald Collen	General Manager Swazi Meat Industry Corporation
12.	Mr. Peter Hughes	General Manager Tambankulu Estates
13.	Mr. Barnabas Mhlongo	Senior Manager Swaziland United Bakery

14. Dr. Austin Khoza  
General Manager  
Swaziland Dairy Board
15. Mr. Derek Von Wissel  
Former Minister of Commerce  
Industry and Tourism
16. Mr. Bruce Lowry  
American Embassy

## APPENDIX III

### A LOGICAL FRAMEWORK FOR ADDRESSING THE PROBLEMS ASSOCIATED WITH INCREASING AGRICULTURAL PRODUCTIVITY AND EXPANDING FOOD PROCESSING

We have arranged our comments concerning constraints and recommendations into a framework that can serve as a reference tool. There can be other approaches, but we start by defining the goals and stating the issues involved, then indicating the questions to be answered or the approaches to be taken in order to - **Determine the Market Potential - Improve the Productive Capacity of the Land - Improve the Quality of the Produce - Integrate Production/Processing/Marketing - Examine Government Policies - Identify External Markets.**

**Goal:** To increase agricultural productivity and Expand food processing.

**Issues:**

1. Limited arable land mass
2. Small scattered land holdings
3. Limited skilled labor and management pool
4. Small internal market
5. large increase in number of young people entering the labor force
6. Heavy dependence on RSA for food
7. Government policies
8. Credit policies
9. Growing seasons

#### Determining the Market Potential

1. Who are the consumers?
2. How many are there?
3. What are their eating habits? Are they changing?
4. Where do they shop? How often?
5. Do competitive products exist? What don't consumers like about them?
6. What are the home kitchen facilities?
7. Should the products be canned, frozen, fresh, refrigerated?
8. What should be the package form?

In answering these questions one can be as "scientific" as one likes, or at the other extreme operate on pure judgement. We prefer the more rigorous approach.

Improving the Productive Capacity of the Land:

1. Is credit available to ensure the timely purchase of seeds, fertilizer, pesticides, etc.?
2. Are we dealing with a monoculture or with crop diversification?
3. Are improved seeds and agronomic practices being introduced?
4. Is there an effective extension service?
5. Are demonstration plots part of the extension program?

Improving the Quality of Produce

1. Do the universities and the research stations work together to improve fruit and vegetable quality?
2. Is the government concerned with improving roads and communication?
3. Does the Agriculture extension service work closely with farmers?

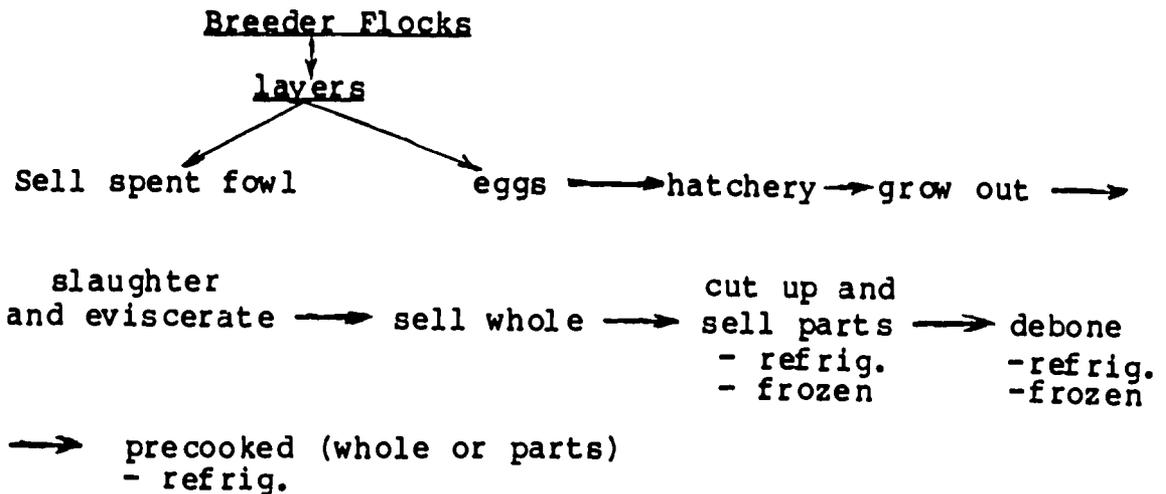
Integrating Production, Processing and Marketing

Poultry is a potentially high growth industry in Swaziland. The evolution of the poultry industry in the U.S. is a good example of how production, processing and marketing are linked together.

The evolution and growth of the industry in the U.S. has been driven by consumer demand for convenience and for quality at low cost and more recently by nutritional considerations. The poultry industry has evolved, by incremental advances, from selling live poultry to selling precooked whole or cut up chickens. The various stages include selling:

- live poultry
- New York dressed (simply defeathered)
- Fully dressed (eviscerated)
- Cut-up parts
- Precooked frozen parts
- Deboned (skin removed)
- Precooked refrigerated

A flow-chart starting with the producer may be drawn as follows.



The producer has the option of selling all his produce (eggs), keeping some and selling the rest or keeping all. Eggs kept can be hatched taken through the grow-out stage, etc. At each stage the grower has the option of selling all he produces, keeping all or part and moving to the next stage. The complexity of the process increases at each stage and small-scale poultry raisers would probably stop at the fully dressed stage.

#### Examine Government Policies

Governments can remove barriers and support programs that will help attain the initial goal. Some illustrative examples,

1. Establish favorable import/export regulations
2. Assist small business development (e.g. low interest loans)
3. Provide marketing information
4. Support education and training at all levels

#### Identify External Markets

For a country small in area and population, identify special "niche" products that have one of the following characteristics:

1. Seasonal advantages (e.g. export fresh asparagus to northern countries during their winter months)
2. An advantage in labour costs. That is produce specialty labour intensive products.

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