Production, Processing, Transportation, and Export Marketing of Horticultural Crops

from

Province of Baluchistan

Islamic Republic of Pakistan

FEBRUARY 1984

Tenneco Inc

TABLE OF CONTENTS

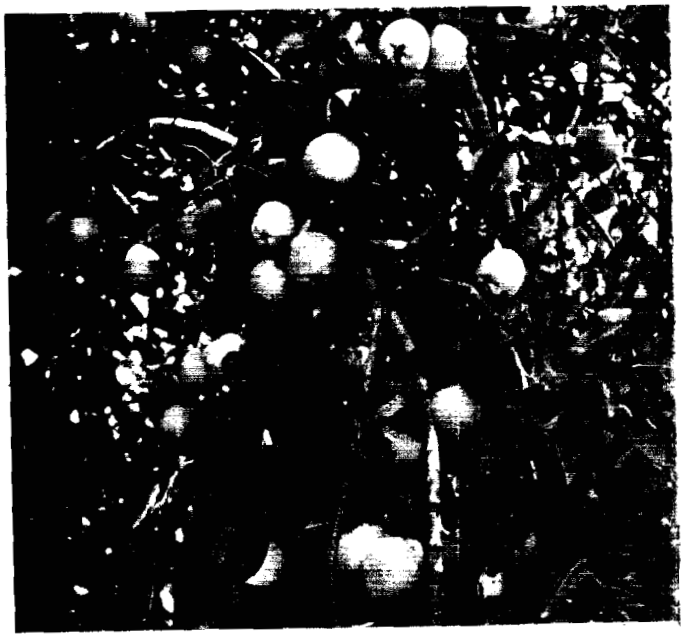
TABLE OF CONTENTS, Continued

TABLE OF CONTENTS, Continued

TABLE OF CONTENTS, Continued

LIST OF ILLUSTRATIONS AND TABLES

Baluchistan . . .



Chapter I. Conclusion and Eduction

CONCLUSION

Marketing fresh fruits and vegetables in Pakistan has complex problems. When the many parts are identified and related to one another, it becomes apparent that the current situation has many positive factors. Coordinating the various elements into an integrated solution offers a renumerative opportunity for private investors to form a viable prototype marketing organization.

Lack of existing specialized infrastructure and the limited capacity of small farmers require pacing in each phase of marketing development for the prototype business to be successful. Balance must be maintained between handling a sufficient volume to control marketing costs and the involvement inherent in obtaining quality perishables from a large number of diverse producers.

Providing infrastructure must begin at Karachi, then be extended by manageable increments toward producing districts. Northern Baluchistan is not suitable for initiating a modern marketing system, but can be incorporated into the marketing chain once an economic volume base has been established to support the expense of collecting small quantities of perishable products from distant dispersed growing districts.

There is a demonstrated need for establishing a modern marketing system. Much interest in improving marketing exists at all levels of responsibility. There is demand in domestic and nearby foreign markets for quality produce at relatively high prices compared to present farmer income. The advisability of adjusting policies to accommodate advanced technology in perishable marketing has been recognized. Investment in specialized infrastructure and farmer assistance are required, but a volume of production is concentrated near the point from which the infrastructure improvements must begin to spread high initial costs at reasonable rates to growers for marketing services. Increments of expansion will parallel the rate of grower and general populace acceptance of improved practices.

Projected calculations call for a equity investment of 37.645 million rupees and a loan from the Agricultural Development Bank of Pakistan of 66.25 million rupees, 60 percent of which will be repaid during five phases of operational development. Return on investment is 28.7 percent. Investment will be paid back in 2.5 years at a discounted cash flow rate of 44.4 percent.

Timing is still favorable for developing export sales outlets in the Arabian Gulf before this market area of high per capita income matures into intense international competition and Pakistan produce surplus becomes a burden.

This conclusion was derived from a five week survey in Pakistan, from official statistics, authoritative reports and information given by Pakistan leaders, either stated orally or in print, and a review of the assembled information by perishable produce marketing specialists.

EDUCTION

Pakistan has great potential for agricultural production in a region of food scarcity and expanding markets. The growing population of consumers surrounding the Arabian Gulf and in Pakistan has recently increased income from oil and other economic developments. Although agricultural production has made gratifying advances in the last three years by common agreement of authorities throughout the world, Pakistan is below the average of third world nations in utilizing its agricultural potential. This low rating does not result from low efficiency among its farmers compared to other developing nations as much as it does from the percentage of realization of Pakistan's advantages in soils, water, labor supply, and climate. Pakistan is much above average in these basic natural endowments; its farmers have about the same problems as the industry has encountered elsewhere at the same stage of development.

As a nation, Pakistan is dynamic. Its leadership, both in government and in the private sector, is striving for advancement through agricultural technology.

Agricultural production is a complex industry requiring the application of several disciplines. It is a long term, cyclical, weather affected business, sensitive to orderly distribution.

The first significant word in a dictionary definition of technology is "systematic." Computers are now a prominent symbol of advanced technology. General use has been rapidly accomplished by that industry in applying effective training programs for designers, operators and managers. Anyone who has exposure to computer use is aware of the repetition of the phrase used in instruction: "Do not proceed to the next step until-- (you have reviewed, practiced, mastered)--this step."

In any new endeavor the learning curve is involved. Americans learning Pakistan specifics. Any farmer anywhere learning a new practice about which he lacks knowledge of supporting information. Produce merchants handling commodities from a new source or from a known source with a new approach, --or analysts writing feasibility reports. Progress at the beginning is slow, but is accelerated by each step that is mastered until the frontier of knowledge is approached, then levels off to about the same rate as the initial stage. At that point Pakistan agriculture will be technically competitve in world markets. Much frustration and disappointment, as well as loss of time and money, can be avoided if each step is accomplished in systematic sequence. Unfortunately many developing countries, and new business ventures everywhere, have delayed progress by planning to circumvent the slower basic steps and have entered competition at a level, or on a scale, for which they were not prepared.

This feasibility study is based on information derived from a five week survey trip to Pakistan, on official reports: Agricupacticesltural Statistics of Pakistan, 1981; Fruit, Vegetable & Condiment Statistics of Pakistan, February 1983; Fruit Development in Pakistan, UN/FAO 1982, and other authoritative reports, from thirty-five years of continuous experience in the management and development of irrigated agriculture in arid regions of five nations, and from reading abstracts and full texts of a comprehensive bibliography of current literature on Pakistan agriculture, its competition, markets and objectives. With the foregoing as background, marketing specialists in Tenneco West, Bakersfield, California were apprised of current marketing conditions in Pakistan. They set forth the basic principles involved in a solution for improvement as well as much of the detailed know-how necessary to make any plan work. It is hoped that their expertise is faithfully promulgated in this report.

A trip to the Arabian Gulf markets was postponed because of it not being constructive until first stage improvements are agreed upon and can be described to receivers. What they want and how they want it is known well enough. The demand for Pakistan fruits and vegetables cannot be assessed until the details of a new approach to quality preservation are agreed upon. Simply telling those people, "Well, the produce will be protected and shipped by the most advanced techniques" will fall on deaf ears and disqualify the person saying it. If the eight fundamental steps of preserving quality described in this report are adopted, Pakistan produce will sell in Arabian Gulf markets at competitive prices equal to other sources. Over seven hundred current inquiries soliciting produce distribution have been listed with the U. S. Commerce Department by merchants in that region.

The eight improvements necessary are:

1. **Grow quality** products. Good quality is the key to grower profits.
2. **Preserve quality, beginning in the grower's field.** Use field boxes loaned to growers. Pick them up at field side.
3. **Refrigerated, humidity controlled transportation** to Karachi. Refrigerated ocean transportation is available.
4. **Refrigerated, humidity controlled storage** in Karachi.
5. **Fumigation, waxes and inhibitors to arrest decay.**
6. **Redesign packing crates to provide vertical weight support** at the ends and ample volume to avoid crushing the produce.
7. **Timely coordinated schedules and procedures** in handling perishables.
8. **Continuous and consistent market presence** in both domestic and export outlets.

Uniform grading, sizing and ripeness of products can then be standardized in shipments. Desirable as uniformity in packing is, efforts to improve these characteristics without quality control have only limited effectiveness.

The time spent in Pakistan was limited for assessing such a broad complex situation, but adequate to obtain information for defining a practical approach to increasing perishable agricultural exports. Acquiring this information was greatly facilitated by the Pakistan Department of Agriculture, the Deciduous Fruit Development Centre at Quetta, the Agricultural Development

Bank of Pakistan, the work done by Philippe Dardel of UN/FAO, Dr. James Cartwright, Dr. Mohammad Saeed, and others. Respect for the competence of these sources mounted as the study progressed.

The elements involved in establishing integrated prototype marketing services are identified in the following discussion. A detailed plan is presented that encompasses the various considerations embodied in the primary stages of developing a marketing system. The plan is based on a methodical pursuit of the successive steps that more advanced areas have had go through. Uneven development of the integral parts of marketing will be unproductive. Advancement of the whole marketing program is governed by improvements in farming productivity, in both quality and quantity.

Pakistan's agricultural problems are not unique; they only seem so when erroneously compared with those of a region a step or so ahead in development. The common problem of not having the basic natural agricultural strengths in productive land, water, labor and a competitive agricultural climate are not a limitation to advances in Pakistan production.

Dispersed in the seventy-two pages of text are tables and other illustrative material. Bibliography and supporting data are appended.

J. L. Heath
Agricultural Analyst

Chapter II. Existing Conditions

Pakistan Agricultural Potential

The potential productiveness of Pakistan agriculture is legendary, from the time of Persian poets who called it the "Orchard of the World," up to contemporary literature where it is referred to as the potential breadbasket of the Middle East. The Indus Valley is much like the joining San Joaquin and Sacramento Valleys of California.

California supplies fifty percent of the fruits and nuts, and thirty-three percent of the vegetables for a nation of 232 million people, as well as being the leading exporting state of the United States in foreign exchange earned from horticultural products. Twenty percent of the total national agricultural production is exported.

The Indus Valley has more arable land than California, more water, better soils on the average because of higher silt content giving increased water holding capacity, and less natural soil salinity in its arid soils. Both of these regions are marine modified basins, however, in the southern end of Sind, a large acreage of cultivated land is strongly modified by marine climate, giving Pakistan much more acreage than California has of this type of climate. California's predominance in U.S. production of speciality crops is centered on a limited acreage of marine modified climate located along the Pacific Ocean.

Both regions have a wide range of agricultural climates where many crops can be produced. They are alike in that the majority of the irrigated acreage is at low altitude, having a long growing season. In these areas, both kharif (spring) and rabi (fall) crops can be planted, making it possible to double crop a substantial portion of the most productive acreage. The combination of these factors in Pakistan supports the observation made in literature, both ancient and contemporary.

Comparison of Yield

Table 4 shows yield of selected districts in Pakistan compared to California.

In two cases, plums and pomegranates, Pakistan yields are greater than those in California. These two crops illustrate two important differences in fruit production in the two areas. First, in Pakistan all food is utilized, a genuine virtue, whereas in California only that portion of the crop that is packed and shipped is shown in harvested yield figures. In the case of plums, heavy thinning of the crop to grown premium sizes is common practice in California, but was not observed in any crop, either by inspection or in the literature, as being a practice in Pakistan. Pomegranates are not a major fruit in United States markets, but are regularly supplied as a novelty item, even though the volume is small, whereas in the Mideast the consumption of pomegranates is much more significant because this fruit has a relatively long edible life, making it suitable for widespread distribution. In other crops California yield is significantly greater.

Table 4. **PAKISTAN TO CALIFORNIA CROP YIELD COMPARISON**

Average Yield per Hectare in Metric Tons

Crop:	District	Pakistan	California	Difference
Apples	Quetta	9.44	24.22	14.77
Apricots	Quetta	12.21	24.55	12.34
Grapes Table	Quetta	10.77	20.98	10.21
Peaches Freestone	Quetta	10.98	19.75	8.77
Plums	Quetta	12.16	8.12	**-4.04**
Pomegranates	Kalat	19.67	6.81	**-12.86**
Kinnow Tangerines	Sukkur	11.45	17.38	5.93
Dates	Pk. Ave.	8.93	12.74	3.81
Onions	Pk. Ave.	10.31	39.43	29.12
Potatoes	Sukkur	8.95	42.27	33.32
	Quetta	9.65	42.27	32.62
Wheat, Irrigated	Pk. Ave.	1.88	4.89	3.01
Rice, Irrigated	Pk. Ave.	1.62	7.69	6.07
Maize, Irrigated	Pk. Ave.	1.27	4.84	3.57
Barley	NWF	.82	3.34	2.52
Cotton Lint	Pk. Ave.	.68	1.23	.55

The major reason for these differences is timing. The two areas are at a different stage of development, which should not embarrass Pakistan agricultural leaders, nor frustrate its farmers.

The basic development of California agriculture as it is today, occurred before World War II when much emphasis was placed upon agriculture. The stages of development have taken a long time. One of the key factors of this development was the decision in the public sector of leadership to emphasize basic and applied agricultural research. At that time, research had not taken on the dimension of today, where the general concept is that with technology any problem can be solved quickly. California's research was in systematic sequence, imposed by pioneering along with others, and largely limited to

practical applications because of lack of money. During those years the economy of the country was chaotic. Large research appropriations were not available, but agricultural problems were prominent in academic studies.

Another factor that greatly influenced the development of American agriculture, and California in particular, was open immigration into the country of depressed, largely agrarian people from all over the world. Being poor and having an opportunity, these venturesome people made valuable contributions to the synthesis of California agriculture with their specialized knowledge of a wide variety of crops.

The leadership of Pakistan has taken these various factors into account in its approach to increasing agricultural production. First, farm income has been designated as one of top priority. Second, it has been recognized that increased volume will come from the private sector and that the private sector can include expatriate interests. Third, know-how, a term used in the VIth Plan, is sought primarily from these expatriates, and not so much their money. Such a well-planned approach is rare in developing countries.

Large investments before basic procedures are worked out have frequently been disappointing. Where there is an economic need, there is also the probability of an economic and regulatory solution, but it takes time to develop these procedures. As they are developed and profitable, others will enter the field at various points, duplicating capacity and emphasis to the point where there is a significant increase in production.

Production History

Pakistan is a new country. Considering the disruption of three wars and an international depression the advances in production have been noteworthy during the last three years, but these increases in yield have occurred mainly in the basic crops of wheat, cotton, sugarcane, and rice which are already organized into an orderly exporting program. Table 5 shows an eight year history of several fruit and vegetable crops that might be exported.

Apple acreage has been more or less uniformly increasing at about 10 percent per year. Considering the rate of new plantings and the increase in yield, which will naturally occur for 10 or 12 years until the trees reach maturity, the approximately one and a half percent annual increase in yield is actually a decline in productiveness. Codling moth control, lack of tree shaping by pruning, and alternate bearing are becoming more of a problem as orchards mature, offsetting the normal yield that can be expected from increase in tree size.

Codling moth is destroying around 30 percent of the crop. Of the 18 farms visited, only two in Pishin had adequate Codling moth control. In the others, losses varied to a point making economic harvest in some of the worst orchards questionable. Comments made by knowledgeable people in the area indicated the

Table 5. HISTORY OF SELECTED CROPS, BALUCHISTAN, page 1

Crop		1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	% Increase
Baluchistan:										
Apples	ha	4,061	4,368	4,806	5,110	5,549	5,922	6,385	6,684	64.6
	ton	29,770	29,516	32,483	35,216	42,267	46,631	50,420	55,770	87.3
	yld	7.3	6.7	6.7	6.9	7.6	7.9	7.9	8.3	13.7
Apricots	ha	1,578	1,769	1,912	1,995	2,106	2,196	2,302	2,391	51.5
	ton	17,720	18,706	19,264	21,164	23,422	25,027	27,770	29,140	64.4
	yld	11.2	10.6	10.1	10.6	11.1	11.4	12.1	12.2	8.9
Almonds	ha	5,665	5,803	5,961	6,051	6,122	6,158	6,184	6,227	9.9
	ton	26,727	20,631	21,865	23,923	22,062	22,542	23,010	20,600	-22.9
	yld	4.7	3.6	3.7	3.9	3.6	3.7	3.7	3.3	-29.8
Dates	ha	8,530	8,631	8,661	8,677	8,721	8,823	8,851	8,898	4.3
	ton	76,885	77,446	78,655	78,693	83,276	83,593	84,280	79,000	2.8
	yld	9.0	8.9	9.1	9.1	9.5	9.5	9.5	8.9	-1.1
Grapes	ha	2,279	2,306	2,332	2,340	2,351	2,374	2,391	2,433	6.8
	ton	27,352	27,432	28,114	28,196	28,835	28,387	28,470	25,640	-6.3
	yld	12.0	11.9	12.1	12.0	12.3	11.9	11.9	10.5	-12.5
Peaches	ha	535	565	577	594	622	637	657	686	28.2
	ton	6,027	5,501	6,174	6,570	6,671	7,006	7,260	7,460	23.8
	yld	11.3	9.7	10.7	11.1	10.7	10.9	11.1	10.9	-3.5
Pears	ha	102	102	102	102	95	95	95	95	-6.9
	ton	874	894	904	874	736	717	720	730	-16.5
	yld	8.6	8.8	8.9	8.6	7.7	7.5	7.6	7.7	-10.5
Pista-chios	ha	563	959	966	977	622	60	65	64	-88.6
	ton	66	55	55	53	52	29	40	90	36.4
	yld	.1	.1	.1	.1	.1	.5	.6	1.4	1300.0
Plums	ha	579	627	654	685	714	732	755	777	34.2
	ton	7,925	7,232	7,669	8,393	8,929	9,543	10,540	9,960	25.7
	yld	13.7	11.5	11.7	12.3	12.5	13.0	13.9	12.8	-6.6
Pome-granates	ha	1,096	1,103	1,107	1,117	1,071	1,088	1,112	1,152	5.1
	ton	22,292	22,231	22,165	22,633	21,960	21,728	22,100	21,960	-1.5
	yld	20.3	20.2	20.0	20.2	20.5	19.9	19.9	19.1	-5.9

Table 5. HISTORY OF SELECTED CROPS, PUNJAB and SIND, page 2

Crop		1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	% Increase
Punjab:										
Bananas	ha	897	700	821	650	2,007	2,017	941	1,107	23.4
	ton	4,133	3,128	3,811	2,796	10,769	11,009	4,643	5,795	40.2
	yld	4.6	4.5	4.6	4.3	5.4	5.5	4.9	5.2	13.0
Citrus	ha	44,492	51,327	58,330	69,464	73,855	65,917	80,294	87,668	97.0
	ton	516,301	620,327	625,704	662,793	565,038	677,493	810,041	864,329	67.4
	yld	11.6	12.1	10.7	9.5	7.7	10.3	10.1	9.9	-14.7
Dates	ha	5,565	5,195	7,704	7,645	6,201	5,671	5,491	5,595	0.5
	ton	29,756	27,793	35,281	51,062	43,404	41,480	40,852	41,370	39.0
	yld	5.3	5.3	4.6	6.7	6.9	7.3	7.4	7.4	39.6
Guavas	ha	11,950	13,322	12,659	11,772	12,548	14,138	12,600	13,355	11.8
	ton	74,789	86,173	81,405	79,795	85,288	96,932	90,293	95,382	27.5
	yld	6.3	6.5	6.4	6.8	6.8	6.9	7.2	7.1	12.7
Mangos	ha	25,702	27,800	21,805	23,029	28,386	25,023	22,895	22,164	-13.8
	ton	347,089	377,904	350,755	318,352	302,234	273,756	282,279	273,861	-21.1
	yld	13.5	13.6	16.1	13.8	10.6	10.9	12.3	12.4	-8.1
Sind:										
Bananas	ha	10,743	12,033	12,796	11,248	11,812	12,611	12,827	13,199	22.9
	ton	97,451	104,381	114,365	103,640	104,945	111,435	114,228	117,545	20.6
	yld	9.1	8.7	8.9	9.2	8.9	8.8	8.9	8.9	-2.2
Citrus	ha	1,958	1,963	2,069	2,187	2,945	3,036	3,110	3,313	69.2
	ton	30,540	26,466	25,092	27,340	34,505	33,663	34,014	34,308	12.3
	yld	15.6	13.5	12.1	12.5	11.7	11.1	10.9	10.4	-33.3
Dates	ha	7,434	5,473	5,548	7,429	7,410	7,494	8,029	8,951	20.4
	ton	67,452	49,509	50,118	67,801	67,229	67,994	68,213	68,723	1.9
	yld	9.1	9.0	9.0	9.1	9.1	9.1	8.5	7.7	-15.4
Guavas	ha	3,325	2,759	2,681	1,813	3,783	1,570	1,939	1,967	-40.8
	ton	18,527	14,542	12,812	8,105	23,240	10,997	12,091	12,242	-33.9
	yld	5.6	5.3	15.9	4.5	6.1	7.0	6.2	6.2	10.7
Mangos	ha	32,032	30,990	31,663	33,563	33,290	33,666	33,913	34,372	7.3
	ton	229,960	223,612	241,706	256,520	254,298	259,834	262,896	267,436	16.3
	yld	7.2	7.2	7.6	7.6	7.6	7.7	7.7	7.8	8.3
Papayas	ha	715	647	674	671	777	727	858	848	18.6
	ton	7,361	5,967	5,013	4,952	5,771	5,629	6,403	6,246	-15.1
	yld	10.3	9.2	7.4	7.4	7.4	7.7	7.5	7.4	-28.2

timing of application is a major fault in control practices when they are employed. Apparently there is no integrated pest control program to limit the insect ecology imbalance that strong chemicals induce. One progressive farmer near Quetta had serious infestations of mites in his other fruit and vegetable crops resulting from attempts to control Codling moths in apples.

Trace element deficiencies are common in Baluchistan orchards and, if left uncorrected, will become more acute as already inadequate natural supplies of some of the minor nutrients are required by larger trees. See Appendix pages 137 through 141.

Apricots planted in Baluchistan, a fast growing tree, are commonly used as windbreaks, and are taken out six or seven years after planting, as the apple orchards that they protect approaches maturity. Apricots, as an interplanted crop, do not receive primary emphasis, nor an opportunity to reach full production.

Almonds have not been favored by most farmers because of the difficulty encountered in insect control. Naval Orange Worm, (Paramyelois transitella Walker), is very difficult to control on small farms because of the necessity of sanitation over a wide area. Apples damaged by Codling moth, or any other fruit or nut left in the field, will cause Naval Orange Worm to increase. Dr. Saeeb of the Sariab Horticultural Field Station in Quetta has observed that insecticides used for the control of Codling moth in apples has increased the incidence of mites in grapes and other crops. With these two serious insect problems in almonds, growers have better profit alternatives with other crops.

Over the eight year period, neither the acreage, nor the yield, of dates grown in Baluchistan significantly increased. However, the yield of Baluchistan dates compares well with foreign yields, and the acreage was significant to begin with at near 80,000 hectares. The Province of Punjab, with about 6,000 hectares, increased its yield at nearly 6 percent per year for a total of 40 percent increase in yield over the eight year period. Date plantings in Sind are gradually increasing. Statistics for Sind show a decrease in date productivity per hectare, but does not necessarily indicate a decrease in yield because of the length of time required for young date trees to come into production.

Pakistan dates offer an excellent possibility for exports. The tonnage is large. Exporting 10 percent of the total crop would not likely disrupt domestic markets where this product sells below the prevailing international price. A ready market exists in the United States for industrial grade dates, but this market has not materialized because industrial users, bakeries and cereal manufacturers require consistent supplies and quality from year to year. It is reported that the monsoon rains damage the Pakistan date crop about one year out of three. Local interpretation of this incidence is one year out of ten. Nevertheless, food manufacturers will not commit their investment in product lines and advertising to a source of raw material that they deem to be erratic. Increased supplies can be assimilated in the industrial market, but supplies must be consistent in both quantity and quality from year to year.

Grape production in Baluchistan has not been significantly increasing in either acreage or yield. This crop offers one of the best opportunities for

export sales because of the quality and variety of Baluchistan grapes, a lack of problems to the extent that other fruit crops are presently encountering, and the potential for increasing yield. Currently grape prices are higher in the Hyderabad market than in Kuwait.

Dr. Saeeb has experimented with using the growth regulator Gibberellin on grapes where he proved the responsiveness of this material to be equal to that found elsewhere. Bunch thinning and leaf removal are likely to be accepted because these practices hasten maturity of the grape crop into the early market. Local farmers know prices are higher for an early crop. Grapes often sell in Arabian Gulf markets and in the United States at twice the price per kilogram of apples. This demand is not reflected in the Quetta market where grapes sell at less than the price of apples by unit of weight.

The area planted to peaches in Baluchistan is not significant at around 700 hectares, and has not been increasing to any great extent. Yields have not been increasing. The quality of Elberta peaches in the Quetta market in late July was good, but the fruit had been picked too early, probably because of the damage that can be caused to riper fruit by the packing containers and the transportation procedures used. Pears and plums are minor crops in Baluchistan experiencing a decrease in yield per hectare.

A small pistachio acreage has dwindled from 563 hectares in 1973 to 64 hectares in 1981, but the remaining farmers report remarkable increases in yield.

Pomegranate plantings have remained stable at 1,100 hectares over the eight year period, during which the yield declined 6 percent.

Bananas are a major crop in Sind, with a small acreage in Punjab. The area planted to bananas has been increasing at about 3 percent per year. Increases in yield per hectare have not been significant.

Citrus plantings have doubled in both Punjab and Sind over the eight year period, but yield per hectare has declined. Guava production in Sind decreased 34 percent. Apparently only the best orchards were left in production where the yield per hectare increased 11 percent during the period.

Mangos are a major crop in Punjab and Sind. Both the area planted and the yield per hectare declined in Punjab, but increased slightly each year in Sind.

Papayas are a minor crop in Sind, where production and yield have been declining.

Overall agricultural production in Pakistan has been improving during the past three years, but this increase in production has come from basic crops, cotton, wheat, sugarcane, and rice, for which marketing channels presently exist. The fruit crops reviewed have generally declined or made only small increases, yet these crops are better suited to efficient production by small farmers than the basic crops. The pattern of prices, plantings and yields indicates that farmers are having marketing and cultural problems with these perishable crops.

Export Markets in the Arabian (Persian) Gulf

Quoted verbatim below is an article on Arabian (Persian) Gulf perishable food markets, reporting the findings of a team of leading marketing experts that appeared in Foreign Agriculture Circular - Horticultural Crops (FHORT, September 1982). These industry leaders knew what they were looking for, what they were looking at, and realized the importance of objective observations of demand, competition, potential, and present status in increasing export sales. With the exception of references to history, substituting "Pakistan" for "U.-S." accurately describes the situation relative to Pakistan aspirations, or anyone else's for that matter. Many exporters of agricultural products are focussing on this market, Australia, Chile, France and others. The Arabian Gulf market with all of its attractive features to international shippers is rapidly maturing into an arena of more intense competition.

Pertinent statements have been raised to bold print in the quotation. Editorial comments have been inserted throughout the article as indented paragraphs.

Page 7, PERSIAN GULF

"Persian Gulf Markets for U.S. Horticultural Products

"The dynamic, oil-rich Persian Gulf countries of Saudi Arabia, Kuwait, and the United Arab Emirates (U.A.E.) offer promising opportunities for expanded sales of U.S. horticultural products. **Capitalizing on these opportunities**, however, **is going to require improved and intensified marketing efforts** by U.S. exporters.

Although these Gulf States now receive less than 5 percent of total U.S. horticultural exports, they are already **vital export markets for** American **apples, pears, and table grapes.** They are also becoming substantial customers for high value-added grocery items from the United States. The development of much of this trade appears to be **due** more **to initiatives of Gulf State importers**, U.S. brokers and export agents than to efforts of producer/exporters.

Increased attention is being focused on these markets **by** U.S. **competitors**, such as France and Australia. With this development, greater **sophistication in the marketplace,** and a modernizing retail structure, U.S. producers, marketing associations, and market development specialists need to become more actively involved in the marketing of U.S. products in the Gulf to expand and influence trade flows. U.S. traders also need to give more **attention to** the prerequisites of doing business in the Gulf region, including **product labeling, local representation, and periodic personal visits.**

These are the basic conclusions of an FAS-sponsored trade team that visited Saudi Arabia, Kuwait, Dubai in the United Arab Emirates, and Bahrain in February 1982. Members of the team were W. R. Hoard, manager (now retired), California Cling Peach Advisory Board; Joseph Brownlow, Manager, Washington Apple Commission; E. Bruce McEvoy, Executive Vice President, Sunkist (Europe) S.A.; Frederick Van Der Monde, director of marketing in Europe, California Raisin Advisory Board; and Richard Schroeter, FAS.

Market Profile

The total **population** of Saudi Arabia, the United Arab Emirates, Kuwait, and Bahrain is estimated at **10 to 12 million** people. About 70 percent of this population is in Saudi Arabia, primarily in the cities of Jiddah on the Red Sea, the rapidly growing Dhahran/Dammam/Alkobar metropolis on the Gulf, Riyadh, the capital, in the Central Province. **Jiddah** in Saudi Arabia and **Dubai** in the U.A.E. **are the major commercial centers for food imports.** In 1980, three-quarters of the food products imported by sea into Saudi Arabia moved through Jiddah's port. Bahrain is an important financial center."

The literature reviewed indicates the estimated population stated to be conservative. Sheikh Abdullah Rashid, a Saudi Minister of Education, estimated the population of the KSA as 10 million in 1982, including expatriates.

More than half of the KSA population is in the eastern half of Saudi Arabia. The road from Jiddah to Riyadh is not a straight line. The distance west from Riyadh to Jiddah is nearly three times as far as Al Khobar to the east on the Arabian Gulf. Pakistan is much nearer to either of these ports than other major food sources.

Mr. Mohammad Aslam, Commercial Secretary of the Pakistan Embassy in Kuwait, reported by telex on November 2, 1983 on tonnages and price ranges of eight produce items imported through Kuwait, the third ranking and least developed of the three major Arabian Gulf wholesale distribution centers:

Item	Tons	$US ton	Rs Kg
Bananas	25,432	400	5.3
Mangoes	1	1,260	16.7
Potatoes	32,264	175	2.3
Onions	26,410	165	2.2
Citrus	43,546	530	7.0
Tomatoes	31,368	430	5.7
Garlic	1,510	1,115	14.8
Cucumbers	15,422	400	5.3

Totals: 175,953 tons Value 000 Rs: 854,819.7

Arabian Gulf demand then is greater than a half million tons of these eight perishable foodstuffs valued at 2.5 billion rupees. Because of its proximity, Pakistan can compete on price, but in these increasingly sophisticated markets it must, at the same time, be competitive in quality. Prices of apples, pears and grapes at these destinations are readily available in the U.S.

"The Gulf countries have **high per capita incomes (over $15,000)** and **a large foreign population.** Although oil is the major revenue source, the countries in the Gulf are making major efforts to broaden the industrial base. Another common thread among the Gulf countries is **an overwhelming dependence on imported foods. Seventy percent or more of their food** consumption consists of imported products."

> A population of 12 million consumers, with a per capita income of $15,000, spending 15 percent of personal income on food, 70 percent imported, calculates to a total food export market in the Arabian Gulf of 1.89 billion dollars or 25 billion rupees. An ample export market exists for Pakistan exports.

U.S. Trade

"High per capita incomes, combined with an overwhelming dependence on imported foods, make the **Gulf countries important markets for horticultural products in general and for high-quality U.S. goods in particular.** Total imports of horticultural products are estimated at over $1 billion. In fiscal year 1981, the value of U.S. exports of fresh and processed fruits and vegetables to the Gulf countries totaled $122 million. This was 32 percent above the value exported a year earlier and over 10 times the value exported in the mid-1970's. Exports to Saudi Arabia were valued at $84.2 million, followed by the U.A.E. at $22.4 million, Kuwait $12 million, and Bahrain $3.4 million. These figures may understate the actual level of trade because of transshipments through Europe.

The composition of U.S. fruit and vegetable exports to the Gulf countries differs significantly from the average composition of total U.S. exports of those products. The most striking feature of the composition of U.S. exports to Saudi Arabia (and other Gulf countries as well) is the **predominance of fresh deciduous fruit, consumer-ready vegetable grocery items, and beverages.** These products account for 70 percent of U.S. horticultural trade with Saudi Arabia, compared to less than 30 percent of our exports to other markets."

> Arabian Gulf markets want what Pakistan can produce, fresh fruit, and offer potential for succeeding stages of development where Pakistan can also compete if the initial development in perishables marketing is accomplished first.

"U.S. exports of noncitrus fruit to the Persian Gulf consist almost exclusively of **apples, pears, and table grapes.** In fiscal 1981 (Oct. 1980-Sept. 1981), Saudi Arabia was the second leading offshore market for U.S. apples, the third leading offshore market for grapes, and the fourth leading market for pears. The U.A.E. was the third largest offshore export outlet for pears, the sixth for apples, and the ninth for grapes. In total, the Persian Gulf countries purchased $31 million of U.S. apples, pears, and grapes in fiscal 1981, or 17 percent of total offshore exports.

Trade in these products with the Gulf States did not begin until 1977. Its phenomenal development since then is due primarily to the initiatives of **Gulf**

State importers who recognized the availability, quality, and supply range of the U.S. products. Today, with charter or importer-owned reefer vessels shipping apples or mixed loads of apples, pears, and grapes to the Gulf, the U.S. products are seen everywhere, from the smallest hawker in the neighborhood souk (bazaar) to the largest supermarket. Red Delicious is the prominent U.S. apple variety imported, with Golden Delicious running a distant second. Pears are of the winter Anjou variety. The grapes consist of California storage varieties, such as Emperors."

> Quality has already been repeatedly emphasized, but Pakistan has considerable advantages from the excellent cooperation of the Pakistan Shipping Corporation in offering a low rate for chartered ocean refrigerated shipping and from the broad array of produce items that can be obtained from Pakistan. International competitors are penalized by the combination of these two advantages.

"The bulk of the remaining U.S. exports consists of grocery line items, such as frozen and canned vegetables, catsup, soups, and beverages. It appears that a significant portion of the trade in many of these items, other than some canned fruits, vegetables and beverage bases, is handled by brokers or export agents in the United States, including export departments of supermarket chains. These firms are in a position to put together mixed containers with an array of products, which have fit buyer needs. One result of the importance of brokers in this trade is an astounding number of U.S. brands on the shelf.

Retail Marketing

Although the retail food business in the Gulf is still dominated by traditional small stores, American-style supermarkets and shopping malls are making significant inroads. Several large retail chains are now operating in Saudi Arabia and Dubai, and expansion is in progress throughout the area. The supermarkets appear to be well managed and often contain numerous non-grocery items or are part of a department store. One possible exception to the expanding influence of the supermarkets is Kuwait. The Kuwaiti market is to a large extent supplied by neighborhood cooperative stores, which are usually owned by prominent Kuwaiti families living in each district.

Currently, the existing supermarkets in the Gulf appear to be patronized largely by the more affluent of the expatriate colony. However, as the stores expand and become more accessible, they likely will reach a broader clientele, which will expand their influence accordingly. This in turn should lead to a more competitive environment.

The ability of the supermarket chains to import large volumes of products, and a growing preference for better quality frozen and canned foods, should also create more opportunities for U.S. exporters. U.S. products appear to have a dominant position on the supermarket shelves; whereas, except for fresh fruits, they are rarely seen in the small neighborhood stores. Probably over 90 percent of U.S. apples, for example, are sold by hawkers or in open-air markets.

Distribution

Port congestion, once a serious problem in the Gulf, is no longer a marketing constraint except possibly in Kuwait. Saudi Arabia, the Emirates, and Bahrain now have modern, heavily subsidized, expansive port facilities that operate on a 24-hour schedule. New ports also are being developed. Some congestion currently exists in **Kuwait,** largely because of the **large transit trade with Iraq resulting from the Iran-Iraq conflict.** Kuwait, however, does have excellent cold storage facilities to handle perishables. Spurred by lucrative government grants, **the development of cold stores both at port and inland points is one of the fastest growing industries in the Gulf.** Present facilities appear adequate for the current level of trade."

> A resident of Dubai reports that new cold storage and dockage facilities recently completed are, for the present, operating at less than capacity. Additional volume is being sought at reduced rates.

"**Jiddah in Saudi Arabia and Dubai in the Emirates are the two main entry points for** U.S. **produce in the Gulf.** The produce is trucked from the port to the receiver's depot, where it is collected and then distributed by truck to outlets within the city or to other areas. The handling and trucking process is labor intensive. **Reefer trucks are gradually being introduced, but packing materials should be sturdy to withstand handling and temperature extremes."**

> The utility of all this modern infrastructure at destination depends on preserving quality uniformly all along the perishable marketing chain back to the grower's field. Gulf merchants have demonstrated that they will not accept less and are willing to pay for top quality.

"**A large number of traders**--commission agents, shipping companies, importers, distributors, trading companies, or blends of these firms--are involved in the food marketing chain. The influential trading companies often have broad interests, getting involved in many activities both inside and out of the food business."

> A computer search of the Foreign Trade Opportunities data base maintained by the U. S. Department of Commerce yielded the following numbers of representation solicitations for handling foodstuffs from the Arabian Gulf for a recent six month period:

Product	Kuwait	U A E
Fruits & Tree Nuts	268	271
Deciduous Tree Fruits	114	114
Fresh Vegetables & Melons	323	324
Grapes	48	48

> It can be inferred that Gulf merchants are actively seeking sources of supply. Only four did not register in both Kuwait and Dubai.

"Wholesale produce markets still flourish in the Gulf, despite some discouragement by governments, particularly in Saudi Arabia. The large produce importers supply some fruit for these markets, as well as distributing directly to wholesalers and retailers. Catering companies also appear to be flourishing, supplying products to the expanding hotel business, hospitals, schools, etc.

Import Regulations

Import duties on food products are generally minimal, with most horticultural products entering duty-free or at low rates of duty. In Saudi Arabia, most imports are assessed a 3 percent duty. Some locally produced goods, such as candy and mineral water, have a protective duty of 20 percent. Beverages may soon be subjected to this tariff rate because of increasing domestic production. Imports of alcoholic beverages are prohibited.

New labeling regulations, designed to inform consumers about packaged products and their ingredients, **are now being enforced throughout the Gulf.** Although these regulations may differ somewhat from country to country, exporters meeting the Saudi Arabian requirements should be in a position to have their products accepted in all the countries. The Saudi regulations require that labels of packaged foods bear the following information: trademark or trade name; product name; ingredients; net weight or volume (metric); name and address of the manufacturer, packer, or importer; country of origin; the date of production or its code number; and the expiration date. Arabic has to be one of the languages used for the product name, contents, and ingredients. This information in Arabic should appear on the label. Fresh produce should be accompanied by a phytosanitary certificate.

The quality of imports and adherence to regulations are checked at the ports. In Saudi Arabia, container cargoes are opened by customs officials, off-loaded, and re-staffed. Generally, this work is done expeditiously, and security is not a problem.

Doing Business

Gulf traders place great emphasis on personal relationships. Thus, periodic visits by U.S. exporters are essential to strengthen commercial ties. Local representation has also been effective.

The importance of personal relationships in commercial dealings poses a problem for potential new-to-market exporters because of the difficulty in visiting the Gulf countries. To obtain a visa (other than a 72-hour visa in Bahrain and Dubai), a prospective visitor must first have a sponsor in the country to be visited. This sponsor requests issuance of the visa from his government. The problem arises in finding a sponsor without first being able to enter the country. . . . ."

> Pakistan representatives probably have convenient egress into other Islamic community will also be an advantage in advertising and product promotion which is discussed later as a marketing function of growing importance in these markets.

market Opportunities

"**Fresh deciduous and citrus fruits are highly popular items among Gulf State consumers**, as evidenced by the large quantities displayed at food stores and by street hawkers. This preference, along with **population growth and high incomes,** is expected to lead to good to excellent prospects for **continued growth** of U.S. fruit exports to the region, **provided** U.S. **prices remain competitive.** The expanding influence of supermarkets and the catering and institutional trade should also enhance opportunities for increased sales of various processed products. U.S. producers should become more involved in this trade if these opportunities are to be fully realized.

The Gulf region has essentially become a mature market for U.S. **apples** within the short span of 5 years. U.S. exports rose from zero in 1976-77 to 2.5 million boxes, valued at $25.3 million, in 1980-81. With widespread distribution attained throughout the region, it appears unlikely that U.S. exports can sustain such dramatic growth. They should, however, at least find gradually expanding sales opportunities through increased recognition of their quality and year-round availability.

Neither U.S. **grapes** nor pears have achieved the remarkable market penetration accomplished by U.S. apples. But these products **are showing increasing strength in the markets due in large part to rising trade and consumer awareness of their quality and availability.** In the 1981/82 season, U.S. grape exports to this region totaled 4,232 tons, valued at $5.9 million. Exports of pears were 240,000 boxes, valued at $3.1 million."

> Baluchistan grapes are early, of good quality, have relatively few cultural problems all of which are simple and easy to correct, and sell in the Quetta market at depressed prices compared to apples. Dr. Muhammad Saeed has conducted field tests with Gibberellic Acid. This growth hormone was consistently effective on grapes as it is in the U.S. Early season grapes are in short supply in Arabian Gulf markets.

"**Lebanon** ranks as one, if not **the leading, supplier of fresh deciduous fruit** to the Gulf region. Other major suppliers include France, Australia and, more recently, Chile.

U.S. citrus fruit has been largely absent from the Gulf region except for some shipments of oranges to the Emirates. **Heavy supplies of oranges, at attractive prices, from Lebanon and Egypt limit opportunities** for U.S. oranges **in the November-March period. More opportunities likely exist for** U.S. **oranges in the remaining months when Lebanese and Egyptian supplies are low or nonexistent.** During these **"off-season" months,** imports originate mainly from Swaziland (some of this fruit allegedly is from South Africa, whose products are banned) and to a lesser extent Brazil. Some importers have expressed **doubt that the relatively thin-skinned U.S. Valencia oranges can withstand the heat and handling conditions, but sturdy packaging should help** overcome these potential problems.

Lemons may have the brightest prospect among U.S. citrus fruit in the Gulf. The lemons observed on the market, mainly from Lebanon and Turkey, were of uniformly poor appearance relative to the U.S. product. The higher quality

U.S. fruit may find ready customers in the supermarkets and perhaps also in the smaller stores catering to the less affluent population.

Although the expansion of supermarkets and rising incomes should stimulate increased demand for a wide array of U.S. processed products, the growth rate may depend to a significant extent on the involvement of U.S. producers. As mentioned previously, much of the trade in U.S. processed products, other than some canned fruits and vegetables, has been handled by brokers. **Producers may be in a better position than brokers to meet labeling regulations, establish brand identity, follow through on sales, establish distribution networks,** etc., **all of which are necessary in an increasingly competitive market.** U.S. producers also may be in a better position to **search out opportunities with the catering industry** and in stores other than supermarkets. At present, U.S. products do not have a strong position in these smaller stores where suppliers from **Australia, France, Japan, etc., have done a** better **marketing job.** For example, cans of fruit juices from Taiwan and Japan are often seen in these stores despite the higher quality of U.S. products.

Non-alcoholic beverages are obviously strong sales items because of **the heat and humidity of the Gulf** and the prohibition on alcoholic beverages. Joint ventures and licensing arrangements are becoming an increasingly important marketing concept for these products. This may be the wave of the future in view of the emphasis on industrial development in the Gulf and the generous subsidies granted for the construction of processing and manufacturing plants.

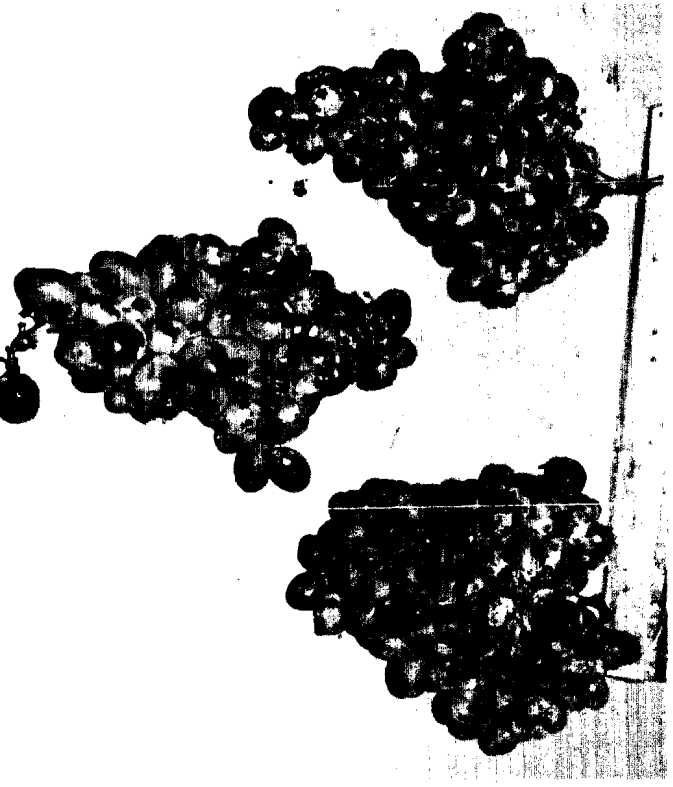
Promotion

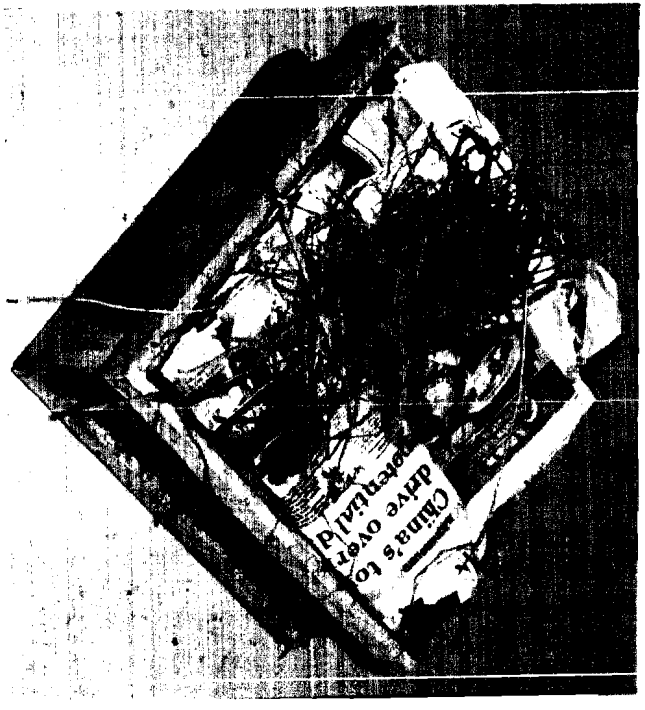
Advertising is not permitted on television or public radio in Saudi Arabia. In other countries, advertising is possible through all media, including radio and television, which reaches audiences along the Gulf corridor in Saudi Arabia. Promotional efforts in Saudi Arabia, other than those on radio or television from the other Gulf countries, concentrate on printed advertisements in newspapers and magazines, street posters, direct mailouts, in-store promotions, and trade exhibits. The most effective advertisements are in **English and Arabic** to appeal to both Saudi and the foreign population.

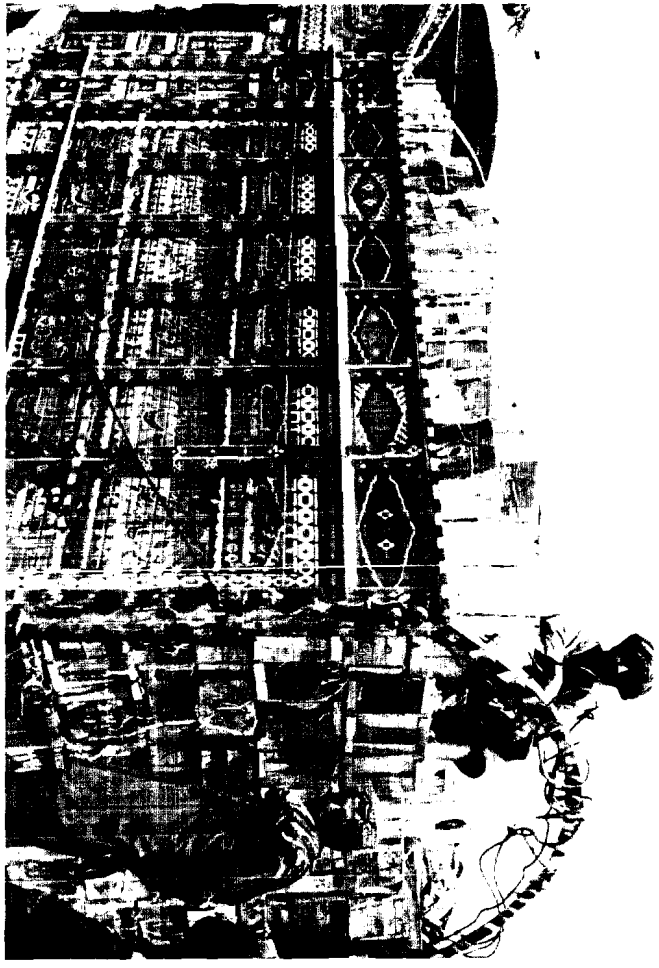
Very little **promotion** has been done to heighten consumer awareness of the quality and value of U.S. products or **to establish brand or origin identity.** Although some importers and distributors tend to discount the need for advertising, **the more progressive trading companies and larger retail outlets recognize the value of promotion and appear very receptive** to efforts such as in-store promotions.

In early 1983, FAS plans to sponsor in-store promotions in one large supermarket chain in Saudi Arabia and one in Dubai. This will be just the first of several activities designed to stimulate increased interest in and sales of U.S. food products.

(Richard Schroeter (202) 447-7931)"







Pakistan Exporting Experience

In recent years Pakistan has been successfully expanding exports of agricultural commodities, but the list does not include fresh produce to any great extent. Success has been inversely proportional to the perishability of items exported. Several studies have been made in Pakistan on exporting fresh fruits and vegetables. Factors involved in these sporadic shipments have been:

1. The export of foodstuffs from Pakistan is licensed by the Government. In years of plentiful supply, export permits may be issued by the Government for those items after a surplus becomes apparent. In years of tight supply, export permits are not issued.

2. When export permits for a commodity are issued, Pakistani brokers notify their agents in the Arabian Gulf markets to advise wholesalers of availability and give them a description of the produce to be shipped. Shipments are made on consignment to the wholesalers contacted. After securing consignment orders, the exporter in Pakistan purchases the specified quantity of produce from one or more of the large wholesale markets through commission agents. It is usually necessary to assemble quantity from the offerings of several commission agents.

3. The produce to be exported then is loaded onto Bedford trucks, one tier at a time, starting from the bottom. It is necessary for the loaders to walk across the top of each tier many times to make a tier. Produce crates have no weight bearing frame on their ends. The containers are generally overfilled in order to insure an 18 kilogram net weight. Compression (boot force) is employed in nailing on the top which gives produce crates a pillow shaped configuration with the greatest vertical dimension occurring at the center of the crate. The combination of the crate design and the loading procedure cause unnecessary bruising and crushing that is not well received by wholesalers in the discriminating Arabian Gulf market.

4. Exporting from Karachi involves fairly high ambient temperatures. Generally, no chilling is applied to the produce at the production site, nor refrigeration in transit to Karachi, nor later in shipping on to the Arabian Gulf. Most shipments are sent by open motor launches requiring three days after loading to arrive in Dubai. Many launches are available for these shipments. The total amount of cargo each trip is not great, so it is possible to make export shipments from Karachi by this means without storing the produce at the port.

   Ocean freight lines call in Karachi on a bimonthly schedule. Scheduled ocean rates for refrigerated containers are six times the rate for motor launches, consequently this type of shipping is not used. Brake bulk dry shipments, i. e. without temperature or humidity control, of onions and potatoes are made at lower rates by scheduled carriers. Chartering regularly scheduled full shipload transportation is not used because of limited capacity of shippers and the uncertainty of export licenses over an extended period of time.

Even with good scheduling, it is probable that shipments originating in Sind or Baluchistan require ten to fourteen days to arrive in Dubai. The produce is transshipped, i. e., loaded and unloaded, at least four times compounding quality losses described in 3 above.

5. During transportation no humidity/desiccation control is used. Fumigation or other decay control measures are not used.

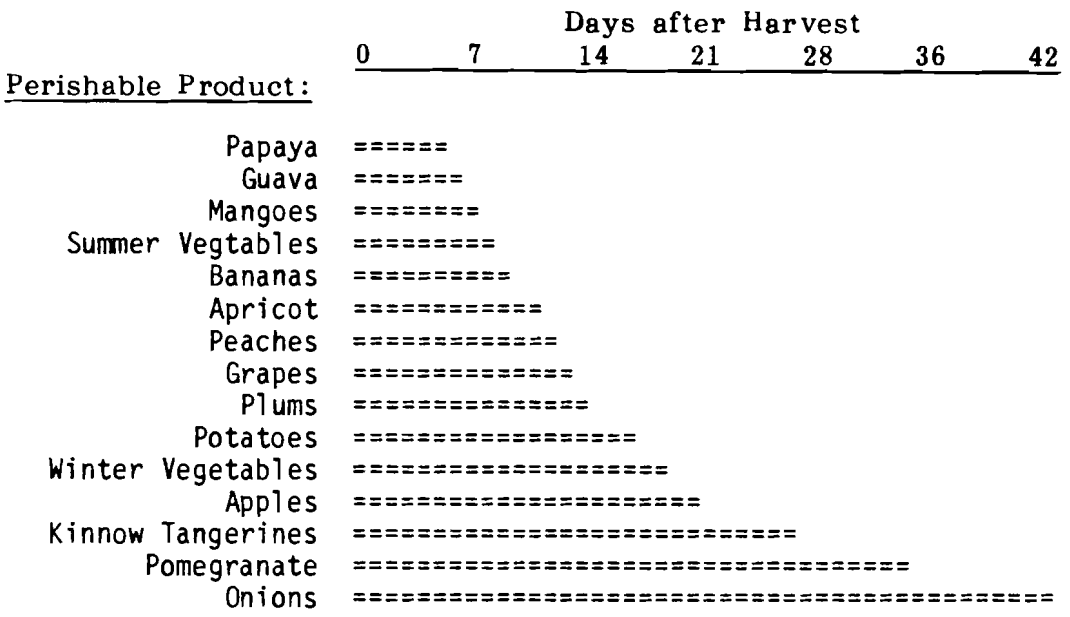
   These conditions affect various commodities differently and individual lots of the same variety differently, depending on the maturity, grading, handling and source. Mature, well graded onions and potatoes can arrive in reasonably good condition because they have a shelf life longer than the transportation period and also because of not being as severely damaged in the transshipping procedures as softer, more succulent fruit. At the lower end of the spectrum are mangos, guava, and apricots which do not arrive in good condition.

6. Sind bananas are of acceptable quality, but somewhat small. Although this popular fruit is exported in volume, prices received by Pakistan producers are only 20 percent of Kuwait prices because of the lack of packaging at the farm site to protect against deterioration in transportation. It was found necessary in Sallalah, Oman, where similar products are grown by small farmers, to pick up produce from the field side to avoid damaging quality by the various means of transportation used by individual farmers in bringing their harvest to a central receiving point. Lipton's five years of experience with dates, a less perishable fruit, confirms the Sallalah conclusion in Pakistan.

7. Such a complex mixture of factors affecting quality all the along the export chain defies accurate description of quality upon arrival, and Gulf merchants have become prejudiced concerning the reliability of such advice by Pakistan exporters of fruits and vegetables.

   All export shipments may not be affected equally by these factors depending on the commodity, the individual exporter, his facilities and the time of year. A market reputation has been established that lowers export prices for Pakistan fruits and vegetables --an obstacle to be overcome as exports are increased at equitable prices.

Figure 3. **EDIBLE LIFE AT AMBIENT TEMPERATURES AND HUMIDITY** in Sheltered Storage



Edible utility is estimated on 33 degrees C. ambient temperature at 40 percent humidity, or less, as being normal in Arabian Gulf households. Some products will shrivel, or lose weight, but other deterioration does not begin if the fruit or vegetable is inititially sound. Appearance will change, making the product noncompetitive with fresh items in retail markets.

Edible life of a product is important in several aspects. Quality control becomes more necessary all along the export chain as this period shortens. Even when quality is controlled to destination distribution of the product is limited to nearby points and more distant locations having refrigerated storage for short life items. Distribution area increases according to length of edible life. Retail consumers in the Arabian Gulf, where home refrigeration is not yet widespread, buy more as edible life lengthens. This principle is clearly illustrated by the pattern of Pakistan exports of fruits and vegetables in Table 6. Exporting cost increases and volume of demand decreases proportional to the perishability of an item.

All parties benefit from diversification of exported items according to edible life. Growers have a more even labor requirement; two short life products harvesting at the same time are difficult to manage without some loss. Long life products may not have the profit margin for growers compared to more perishable items, but are more tolerant of inclement weather during harvest and generally have more uniform seasonal prices. Diversification by crop spreads risks of overproduction (market price) and seasonal fluctuations. Diversification by product life spreads weather risk during the critical harvesting period. Wholesalers and shippers gain from increased and more stable volume.

Controlled storage and other quality control practices of a modern perishable marketing chain preserves the edible life of products while in transit delivering close to field fresh quality at destination. As distribution facilities are improved beyond the receiving wholesalers, as is now occurring in Arabian Gulf markets, the limitation of edible life in consumption volume is greatly reduced, opening new opportunities for sales of a wide assortment of perishable foods.

Table 6. **PAKISTAN EXPORTS OF FRUITS AND VEGETABLES**

Year 1980-81

Items	Quantity (tons)	Value (000) Rupees	Rupees 40 Kg	Hyderabad** Low(40Kg)	Kuwait*** Low(40Kg)
Apricots, dried	407.3	10,330.8	507.3		
Bananas, fresh	9,422.8	19,146.4	40.6	94.8*	210
Citrus, Kino	20,273.6	39,631.9	39.	42.5	280
Dates, dried	2,546.6	13,922.6	109.3		
Garlic	25.4	170.0	133.9	250	588.50
Grapes, dried	132.4	2,302.9	347.9		
Mango, fresh	4,241.5	24,805.2	117.	175	700
Onion	75,281.8	117,538.1	31.2	42.50	87.50
Pears	5.2	12.8	49.2		
Potatoes	4,853.1	8,878.8	36.6	60	93

* Estimated weight 1 kg per dozen.

** Source: Fruit, Vegetable and Condiment Statistics of Pakistan. Feb. 1983

*** Source: Mohammad Aslam, Commercial Secretary, Embassy of Pakistan, Kuwait

Onions were by far the largest export in both quantity and sales revenue of the fruits and vegetables exported by Pakistan. Price received for exported onions was 26 percent below the lowest price that onions sold for in the Hyderabad Market. Citrus, or Kino, was the second largest export item, and moved at a reasonable price relative to the Hyderabad Market. These two items accounted for 58 percent of export revenues.

The prices paid for exported fruit and vegetables indicate that Pakistan's export sales are in a buyer's market situation. None of these items brought a premium over the lowest price listed for the Hyderabad Market. Several of them were purchased substantially lower than prevailing domestic prices. Potatoes, the fourth ranking export, were bought at 61 percent lower than Hyderabad price. Date exports were very small relative to the size of the Pakistan crop and realized only about 30 percent of the domestic price.

The quantities of products exported are inversely proportional to their individual perishability with the exception of bananas. Bananas would have followed potatoes rather than preceding them had this principle applied thoughout, however there are several factors which influence export demand,

such as competitive availability. The fact that this occurred indicates potential for exporting bananas. Pakistan is the nearest source of bananas for Arabian Gulf markets. Shippers from East Africa are farther away and have unsolved quality control problems.

General discounting under domestic prices and volume so closely corresponding to perishabilities describes a condition of buyer dominance in a market without storage facilities at the point of embarkation. The pattern does not reflect Arabian Gulf demand for products grown in Pakistan.

Table 7. **PRICES IN MAJOR WHOLESALE MARKETS**
(Rs per 40 Kg)

Crop	Hydera-abad	Quetta	Lahore	Pesh-awar	< Vol. Month	Mkt. Level	Back Haul	Stor-age	Ave. Hyder.
Apples	420	200	510	360	Oct.	220		****180	661.62
Bananas	94.5	160	130	130	Any		65		111.20
Citrus, Kinnow	45.	35	18.5	30	Nov.			**68.8	96.74
Garlic	250	235.5	325	292.5	Jul.				435.98
Grapes	387.5	127.5	390	410	July	260		*37.5	412.50
Mango	130	190	235	305	July		60		196.25
Onions	42.5	55	45	70	July				75.75
Potatoes	60	35	59	60					60.00
Okra,(L. F.) Summer	42.50	112	52.	52.50	June		69.5		88.75
Squash, Summer	57.50	47	62.50	21.75	June				71.84
Egg plant, Winter	23.5	141	46	36	Dec.		117.50		49.42
Tomatoe, Winter	76	131	170	93.75	Jan.		55	*70	135.58

* Indicates storage for one month.
Source: Fruit, Vegetable & Condiment Statistics of Pakistan, Feb. 1983

An analysis of wholesale prices indicates there is no appreciable cold storage used and that product mobility between the Hyderabad and Quetta markets is extremely limited. There may be some statistical problems with apples and grapes in both the Quetta and Hyderabad markets; however, present data clearly indicate the general direction of need, if not the degree.

One thousand tons of cold storage capacity can realize 4,185,00 Rs in wholesale price increase by holding 46,500 crates of apples from October to January, then gain 1,845,000 Rs by storing 90,000 lugs of tomatoes for thirty days in the January to March season and 76,700 Rs from 46,500 crates of brinjal (egg plant) for thirty days (season: June through July). Price increases from storage can equal the investment in the cold storage plant in eight months, or earn 1.5 times the plant cost in one year.

The need for additional transportation between markets is even more spectacular. A truck and refrigerated van hauling 1,800 lugs of grapes in September from Quetta to Hyderabad can realize 234,000 Rs per load in price differential between the two markets then gain another 35,830 Rs on the back haul to Quetta with a load of bananas. Gross revenue from the difference in market levels, together with savings in backhaul, will equal the investment in the transportation equipment in 7.12 trips or 19 days of use. Similar price differences occur in other months, apples in October with a backhaul of brinjal (egg plant) as another example.

While it is not contemplated in the proposed plan that storage and transportation gains will accrue to the operators of these facilities, the figures cited demonstrate that each investment, storage and transportation, is needed now in the Pakistan perishable distribution system and can earn a substantial return as an independent investment.

The problem with this type of independent investment alone in perishable marketing is that volume and quality quickly become limiting factors unless all of the other necessary elements in the distribution system are uniformly developed at the same time. At present there are probably a few progressive farmers who produce storage quality and would use refrigerated transportation if it were available, but without expanding an improved production base, which is a major integral part of establishing a perishable marketing system, the superficial promise of these projects alone will soon be throttled by volume, the key to economic marketing costs. After a prototype marketing chain is in operation, independent investments can augment any of the distribution facilities where return on investment merits.

Entry of other investors, individuals, farmer cooperatives, or corporations, can bring about free market control of rates charged at any point along the marketing conduit. Improvements in efficiency and uniformity work to the benefit of all concerned, including domestic competitors, because increased capability is the advantage needed to meet international competition. The real competition is not internal. Pakistan has the natural advantages to win in the international ball game if improvements are holistically approached in axiomatic stages and the real competition, which is not internal, is kept clearly in view by the domestic team.

An Informed Resident Appraisal

Quoted below is the section of P. C. 1, Fruit Development in Baluchistan (Phase II) presenting the justification for continuing the work at Sariab written by Dr. Mohammad Saeed, Project Director:

"Baluchistan is the biggest province in Pakistan with a total area of approximately 347,060 km. (135,570 square miles; California: 158,693 sq. mi.) The largest part is mountainous, mostly rocky and barren. Cultivated land is limited to about 4 percent of the total area. Agriculture is largely pastoral with movement of sheep from the low lying winter pastures to the high pastures in the summer. The province is semi-arid with maximum rainfalls of up to 380 mm per annum in the north and from 200 mm down to 80 mm per annum in the south and west. These areas are at elevation between 1,500 and 1,700 meters. Generally, the soil is deep, alluvial, silty clay and while land is available, water is limited. Early fruit plantation was dependent on water from "Karezes," manmade underground water channels originating in the foothills of the mountains surrounding the upland valleys. These systems are declining because of damage by earth tremors and the impossibility of obtaining labour to carry out the difficult and dangerous work maintenance. Replacement by open surface wells and tube wells has brought about less dependence on the kareze system. Increased electrification supplying a relatively cheap source of energy for pumps has caused a dramatic increase in the number of wells in the period 1972-82 and a corresponding increase in orchard area. The combination of increased consumption of water and intermittent recharging has caused concern in some areas.

i. Poor roads and long distances from the main market in Karachi have been major constraints in marketing, but extensive road improvements are being carried out.

ii. The types of fruit produced include almonds, apples, apricots, cherries, grapes, peaches, plums and pomegranates. Many of the varieties are indigenous in the Suleman mountains, Eastern Alborz Mountains, Hindu Kush and Western Himalayas. Some varieties have been introduced from the Western Hemisphere. Orchard management is poor and has led to many problems which include:

a) Excessive vigour and slowness to come into bearing associated with the use of seedling or crab apple rootstocks.

b) Multi-stemmed trees and canopy orchards with reduced fruiting area and increased number of small fruits. Lack of pruning and training. Orchards difficult to spray for pests, e.g. Codling moth.

c) Large trees difficult and expensive to harvest.

d) Unsuitable varieties, e.g. Amri, Apple.

e) Wastage of water by channel and flood irrigation.

f) Difficulties in mechanization in orchards with irrigation bunds.

g) Excessive damage to fruit by bad handling.

h) Biennial bearing with excessive crop in one year and none or very little in the following year, e.g. Kullu.

In relation to varieties, it should be noted however that some local varieties could be equal to, if not superior to, imported varieties, e.g. grape Haita, un-named thin shelled almonds and Qandhari pomegranate.

iii. It is estimated that fruit production gives a gross income four to five times greater than that of cereals. Deciduous fruit production is the largest source of income in the province, contributing 22.6 percent to the Provincial Gross Domestic Product. Within Pakistan, Baluchistan is the biggest producer of deciduous fruits.

iv. The demand for fruit greatly exceeds the supply and most fruit can be sold as fresh, leaving no regular supplies of lower priced processing fruit. Grading is minimal and does not conform to any standards.

About 80 percent of the apple crop is sold to contractors usually at fruitlet stage and a cash advance is made to the grower. The system is open to abuse but it has to be remembered that the majority of orchards are small, 2-4 acres, the growers have no means of transport or arranging distant sales and the system works reasonably well at present. It could be less effective if there was overproduction of fruit. The remainder of the fruit is sold through wholesalers in Quetta and from there to secondary wholesalers in Lahore and Karachi. A small percentage of the apple crop is stored in cold stores in Quettal and Karachi.

Production costs are not known and the extent and content of the Provincial orchard are not adequately known.

Projections about future marketing developments tend to be subjective. While the present state of supply and demand exists, it will be difficult to introduce grading standards and sophisticated packaging.

v. Growers' organizations have proved difficult to establish and this can be attributed to a lack of any particular need to form associations or cooperatives. In the present market state, there is no apparent financial incentive to sell through cooperatives.

vi. The fruit industry of Baluchistan can be described as having a low level of technical input and produces fruit of varying quality and quanitity. Because of the lack of even elementary technology, growers are not realizing the full potential from their work and consumers remain constantly in short supply of reasonably priced fruit.

vii. Lack of continuity of effort and lack of adequate expertise by research and extension institutions had led to an ineffective contribution by the Government to economic fruit production. In order to overcome this, the Government proposed the project, Fruit Development in Baluchistan, Quetta as joint venture with UNDP/FAO. The Project was largely orientated towards post harvest activities and initially failed to make any impact on improving fruit production.

The latter part of the project was used to establish the base necessary to carry out a fruit production modernization programme. Experimental orchards and scientific services were established and some preliminary staff training started both at home and abroad.

Research and development in tree fruits and ultimately demonstrations to growers is a long term process, and a five year project will only go half way towards obtaining information and making recommendations."

FAO 1982 Report Summary Comment

Paraphrased text from page 149 of FRUIT DEVELOPMENT IN BALUCHISTAN, PAKISTAN by Philippe Dardel (1983)

6.1 HORTICULTURAL PRODUCTS AS A WHOLE

Under present conditions of supply and demand, marketing deciduous fruit in Pakistan is relatively easy. The situation is "quiet." Revenues of the fruit producers remain similar from one year to another. Slight fluctuations in prices due to changes in supply or demand are absorbed mainly by the contractors.

However, fruit production is projected to increase more rapidly (10 percent per annum in planted acreage) than the expected growth of population (3 percent per yr.). Difficulties may arise within a few years.

Furthermore, studies show that feasible changes in the present marketing process can increase the revenues of growers, thus increasing farm income in the villages to help in the general development of the country. For this reason, the proposed new steps for improving the marketing of fruit and horticultural products should be implemented as soon as possible.

It is difficult, if not impossible, to consider problems relating to deciduous fruit marketing separately from the marketing operations of other types of vegetables and fruits. Deficiencies in packaging, market infrastructure, transport, Market News Service, and standards are common to all horticultural products. Baluchistan already has problems in marketing onions, potatoes, and dates.

Government Objectives and Policies

Pakistan leadership is intimately aware of the foregoing. In the report on the Strategy for Food Self Sufficiency and Maximization of Agriculture Exports for the VIth Plan by A. Jameel Nishtar, the major policy measures needed in marketing fruits and vegetables are concisely summarized. The following is quoted from page 65 of that report:

"MAJOR POLICY MEASURES:

1. The most important policy measure for this field is ensuring stability of exports. The government should therefore decide to open up these sectors to export once and for all, regardless of the marketing situation in any particular year. Once this stability has been ensured, the overall production will grow very sutstantially, thus ensuring stable domestic availability.

2. In order to develop export in a substantial manner, it will be necessary to induct modern corporate enterprise in this sector. This should consist of partnerships between high technology specialist foreign firms and efficient local entrepreneurs. By this method not only will modern methods of production be inducted, but also standardisation, quality control, export packaging and export marketing will be possible. It is only when a few such firms have given the lead that large scale local development will be possible. It will not be necessary in most cases for these firms to own large tracts of land of their own. They would enter into contractual relationships with growers, providing them know-how and technical supervision and purchase the produce from them. Thereafter they will export them after standardisation, grading and packing.

3. It is necessary to allow the import of high quality vegetable seed and small horticulture equipment on a completely free list basis.

4. It is necessary to encourage the setting up of cold storages, dehyderation and processing plants.

5. Efficient, and if possible, concessional air cargo arrangements may be made for direct flights from Karachi, Lahore and Islamabad to various Gulf destinations."

On page 62 of that same report in the major policy measures recommended to maximize the exporting of fruit, the following paragraph is quoted:

"1. It is essential to encourage corporate sector private enterprise in this field consisting of high technology international firms in partnership with local entrepreneurs. Apart from guidance regarding the technical aspects of production, this arrangement is necessary in order to undertake international marketing. In this field, exports depend very much on strict quality control, standarisation, packaging and efficient exporting. It is only large scale modern projects which can set up an example for this

> type of development. Therefore, in order to initiate modern development in this sector, it is necessary to encourage the formation of a few large scale private sector projects, in partnership with high technology specialized foreign firms."

Chapter II of this report recites generally known information on the existing conditions in the Pakistan fruit and vegetable industry as a background for evaluating the proposed prototype plan for initiating a modern marketing system for perishables as it might be implemented by a private sector corporation directed by specialized foreign technicians and a Pakistan administrator, described in Chapter III.

Timing is right for implementing these measures. Receptiveness exists in both newly developed interest in Pakistan agriculture and in Arabian Gulf markets. Development plans cannot become viable without these attitudes. Further, Arabian Gulf markets are rapidly maturing. Foreign competition in that high income region will become more intense with time, making it more difficult for Pakistan to dispose of potential future surplus if a prototype marketing operation is started at a later date.

Quetta

Progressive farmers

a Pakistan

resource

Sind

Chapter III. A Marketing Development Plan

Basic Approach

The prototype marketing organization is designed to provide the infrastructure necessary to establish an integrated marketing chain from the grower's field through wholesale markets, domestic or foreign. The marketing organization will select, train, organize and pay personnel to operate the sales, administration, storage, packing, transportation, product collection, and farmer assistance functions that are now lacking. Assistance to progressive farmers will make available the means, including training, supervision, input financing, and supplementary equipment, to grow and market their produce in an orderly fashion. Increased yields of quality fruits and vegetables will be handled by the prototype marketing organization as a services business not participating in the gains obtained other than through a six percent sales commission, container sales, standardized rates for services rendered and cost recovery for grower assistance. Rates for services include a return on investment and compensation for management.

Confidence among farmers that a perishable marketing system exists, together with increased income returned to growers by marketing services, will stimulate basic production advances in quality and quantity. Once a prototype organization demonstrates the requirement for integrated practices in handling perishables, it is expected that technical improvements will spread throughout the perishable products sector of Pakistan agriculture.

Although the prototype marketing organization will be relatively small in the beginning, it will be complex. Unlike conventional brokerage businesses, the prototype marketing service must provide a complete infrastructure for its operations and gather its products from many growers who need to be instructed, trained, supervised, and coordinated. The latter alone is a monumental and time consuming task.

Accounting Pools

An accounting pool will be set up for each commodity within a district to equitably distribute sales proceeds to farmers after charges for services are deducted. Because of the aggregate volume handled, the charges for field service, refrigerated freight, pre-cooling, packing, fumigation, waxing, decay control, storage, sales, and forwarding will be less than the expense to a grower of providing these requirements for himself, if he were able. The marketing organization will charge growers only for services applicable to an item marketed.

Advances can be set at the going prices prevailing in a district for a product equal those offered by local contractors and paid at the customary time. The total amount of advances to a farmer will be based on the average yield in their district. Each year the grower's actual yield will be used in place of the district average, up to a total of three years. Subsequently advances will be based on a grower's three year average, thus encouraging growers to increase yields. These advances will be deducted from the grower's return when the accounting pool is settled. In the case of bananas where harvest continues throughout the year, an accounting pool may have several closings to recognize seasonal price variations.

Pooling account balances, after a small deduction for incentives to field personnel, including the key organizing progressive farmers, will be distributed to farmers participating in the pool in proportion to the volume and grade of product each has delivered. Interested farmers will be assured of a market outlet with an opportunity to participate in net proceeds just as they would in a marketing cooperative, with much less cost than embryo cooperatives experience.

The Cooperative Alternative

The marketing operation will function as an integrated, consistent marketing conduit, differing from a cooperative only in that management and control of the marketing organization will not fall upon farmer groups that are not presently able to meet international competition. Advocates of cooperative theory are quick to question the rate of return on investment paid to private investors, but contemporary comparison of net sales proceeds paid back to U.S. farmers by cooperatives and private businesses does not show advantages in favor of cooperatives. Private corporate core organizations for processing and marketing have been growing more rapidly in the United States than long established cooperatives with which they compete. However competition between the two forms of organization has contributed to the efficiency of both. Private business growth has resulted from returning to farmers proceeds equal to cooperatives, usually with simpler, faster payback schedules.

The costs of pioneering, in money and time, can be greatly reduced for new enterprises if there is a successful local pattern to follow. The present Pakistan marketing situation cannot be solved by proliferating small new cooperatives alone, but they can effectively fit into a marketing chain once it has been established. Historically in highly developed agricultural markets the private sector has initiated the market structure followed by the development of cooperatives to keep it in balance.

As market structure matures, there is little difference between the two types of organizations; both operate as a competitive corporate core. The ideal of farmers managing their own marketing is not a reality. Farmers may control their marketing cooperative, but they must hire management expertise. Not having specialized marketing knowledge, farmers frequently select management based more on agreeable personal attributes than on sales efficiency. At any stage of development, perishable marketing is a specialized endeavor. Both mature successful cooperatives and private sector firms delegate directing the business to highly paid marketing professionals.

Where to Begin

An active market exsits in the Arabian Gulf for Pakistan agricultural produce. Once an orderly balance is established between domestic markets and quality control is achieved, exports can earn significant foreign exchange. Refrigerated ocean transportation is available from Pakistan Shipping Corporation, but beyond the port of Karachi toward Pakistan growing districts, there is not adequate infrastructure nor the attending quality control practices to provide produce of competitive quality for export.

Karachi is the point to begin by building a cold storage plant of 1,000 tons capacity with facilities for precooling, fumigation and other methods of arresting decay, container manufacturing, packing, and coordinating truckloads arriving daily with distribution to domestic markets and periodic outgoing ocean shipments.

A marketing operation of this size will initiate accomplishing the objectives, but will be small enough to avoid high start-up costs on a larger volume. The per package unit expense of personnel and equipment necessary to accumulate export quantities from a large number of farmers and to transport produce to Karachi will be heavy at the beginning. Unit costs are influenced by volume, the number of farmers supplying that volume, degree of concentration, distance, and organizational efficiency. As training and experience accumulate, efficiency will increase. Volume can then be expanded without undue high costs per unit. The initial phase should be kept as simple as possible to control costs while procedures are being established. Concentration on grower assistance will demonstrate the profitability of advanced practices.

Increased Production

An export program cannot become effective without first establishing itself as a marketing conduit to both domestic and foreign markets. At the present time several items, apples and grapes for example, are selling in the domestic market at higher prices than can be obtained elsewhere. If apples are exported rather than being sold on the higher domestic market, the disparity will cause all sorts of confusion and contention in grower relations. At first a large portion of the product tendered by farmers will not meet the standardized quality of international markets that it must compete with in exporting, yet quality standards must be maintained if Pakistan is to receive its due share of export markets in the future. Lower grades then must be sold in local markets. If off grades bring more money back to the farmer than premium quality exports, the exporting program will not have much appeal to producers and will flounder without stimulating better quality nor much interest in advanced practices. This imbalance cannot be legislated away; it must be solved by production encouragement, that is, increased grower income from a free flow of products between markets.

Farmers must have confidence that their marketing outlet is treating them fairly. Any feeling that they are being used to gain somebody else's goal will bring forth characteristic agrarian wariness and apathy. Farmers may seem to be inarticulate, which may be true, but in no way is their perceptiveness limited. Farmers make their living by being close and accurate observers, regardless of whatever other intellectual tools of knowledge and elocution they may lack.

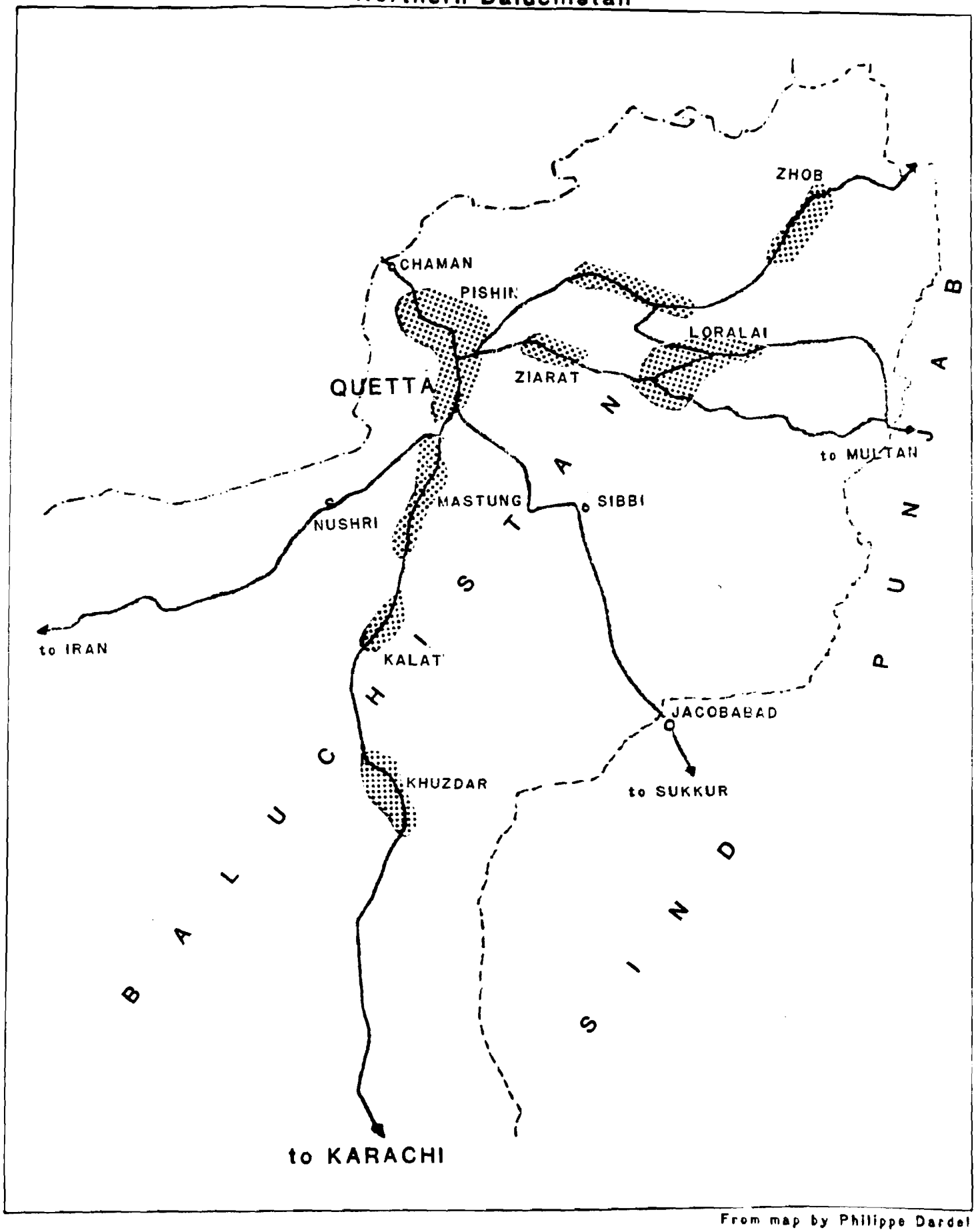
Initially high priced items handled by the marketing organization should be sold domestically if such sales bring farmers a higher return. Increased farmer income will stimulate production. This has to come first. Pleadings for advanced cultural practices will not receive effective farmer attention without it.

New plantings of tree crops will not yield for several years. Annual crops of vegetables and melons should be brought into the marketing system for additional farmer income to meet the cost of the nonbearing years of permanent crops and to increase volume for the marketing organization. Philippe Dardel emphasized this principle in the FAO report: Steps in improving a market structure involve all of the interrelated marketing functions in systematic sequence and degree. Uneven emphasis or piecemeal corrections will be disappointing.

Baluchistan Marketing

It has been proposed that an exporting operation be set up from northern Baluchistan. This can be accomplished in the second phase of export development, but not at first because of cost. Reasonable marketing costs are dependent on handling a volume near the capacity of the cold storage plant, refrigerated transportation equipment, and personnel over an extended shipping season. Sources in Pishin, Quetta and Kalat are not suitable for initiating the first phase because of quantities available, scattered growing areas, a short harvest season, and the distance involved. In the second phase of development, Baluchistan can be incorporated into the marketing chain once the basic costs of the operation are supported by volume from nearby year-round production.

DECIDUOUS FRUIT AREAS
Northern Baluchistan



From map by Philippe Dardel

Table 15. ZONE 1 - SEASONAL TONNAGE
Handled by the Marketing Organization, Metric Tons

Zone	District	Product	Mktg. Tons	Peak	Season	Vol. Mo.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Baddin	Bananas	1,050	Sept.	12 mo.	90	90	90	90	90	90	60	90	90	90	90	90	90
1	Baddin	Garlic	130	June	Jun-- Dec	20						30	20	20	20	20	20	
1	Baddin	Mango	1,500	July	May-- Aug	375					375	375	375	375				
1	Baddin	Onions	3,600	July	May-- Aug	900					900	900	900	900				
1	Baddin	Vegtbls.	1,000	Jan.	Nov-- Apr	165	170	170	165	165							165	165
1	Hyderabad	Bananas	3,000	Sept.	12 mo.	250	250	250	250	250	250	250	250	250	250	250	250	250
1	Hyderabad	Garlic	320	June	Jun-- Dec	45						50	45	45	45	45	45	45
1	Hyderabad	Mango	3,200	July	May-- Aug	800					800	800	800	800				
1	Hyderabad	Vegtbls.	1,700	Jan.	Nov-- Apr	280	300	280	280	280							280	280
1	Nawabshah	Citrus	2,000	Nov.	Nov-- Dec	800											1,000	1,000
1	Nawabshah	Onions	1,100	July	May-- Aug	275					275	275	275	275				
1	Tharparkar	Bananas	1,950	Sept.	12 mo.	160	165	165	160	160	160	160	160	160	165	165	165	165
1	Tharparkar	Onions	1,300	July	May-- Aug	325					325	325	325	325				
1	Thatta	Bananas	1,500	Sept.	12 mo.	125	125	125	125	125	125	125	125	125	125	125	125	125
1	Thatta	Vegtbls.	1,800	Jan.	Nov-- Apr	300	300	300	300	300							300	300
		TOTALS	25,150				1,400	1,380	1,370	1,370	3,300	3,350	3,365	3,365	695	695	2,440	2,420

Table 16. ZONE 2 - SEASONAL TONNAGE
Handled by the Marketing Organization, Metric Tons

Zone	District	Product	Mktg. Tons	Peak	Season	Vol. Mo.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	Kalat	Apple	200	Oct.	Aug-- Sep	100								100	100			
2	Kalat	Apricot	50	June	June	50						50						
2	Kalat	Grapes	150	July	Jul-- Sep	50							50	50	50			
2	Kalat	Onions	5,500	April	Apr-- Jun	1830				1840	1830	1830						
2	Kalat	Peaches	50	Aug.	Jul-- Sep	15							15	20	15			
2	Kalat	Plums	300	July	Jun-- Jul	150						150	150					
2	Kalat	Potatoes	1,800	Oct.	Aug-- Dec	360								360	360	360	360	360
2	Khuzdar	Pomegr.	100	Sept.	Aug-- Oct	35								30	35	35		
2	Pishin	Apple	200	Oct.	Aug-- Sep	100								100	100			
2	Pishin	Apricot	100	June	June	100						100						
2	Pishin	Grapes	1,400	July	Jul-- Sep	465							465	470	465			
2	Pishin	Plums	300	July	Jun-- Jul	150						150	150					
2	Pishin	Pomegr.	50	Sept.	Aug-- Oct	15								15	20	15		
2	Pishin	Potatoes	1,100	Oct.	Aug-- Dec	220								220	220	220	220	220
2	Quetta	Apple	200	Oct.	Aug-- Sep	100								100	100			
2	Quetta	Apricot	100	June	June	100						100						
2	Quetta	Grapes	700	July	Jul-- Sep	235							235	235	230			
2	Quetta	Peaches	50	Aug.	Jul-- Sep	15							15	20	15			
2	Quetta	Plums	200	July	Jun-- Jul	100						100	100					
		TOTALS	12,550							1,840	1,830	2,480	1,180	1,720	1,710	630	580	580

Selection of Producing Districts

A new operation will have less trouble getting started if due consideration is given beforehand to avoid disturbing the existing marketing structure. Under the proposed plan in the initial phases, the amount of produce handled by the prototype system has been limited to 10 percent of the volume of an item grown in each district. Immediate improvements in yield resulting from better insect control and product savings in adequate packaging, precooling soon after harvest, decay arrest, refrigerated transportation and cold storage will make up in total food production for the amount of product diverted through the marketing organization. Information on market prices, cultural practices, and field test results will be open to anyone in the district who is interested. Improved containers, decay inhibiting wrapping material, and transportation will be made available, subject to the needs of client growers, to anyone in the district. The object is to avoid disturbing the present structure of a district until new practices are demonstrated and generally adopted.

Other considerations used in the selection of producing districts take into account the volume of associated crops grown by a farm and the distance from the Karachi plant. Wherever economically consistent, supply is taken from outlying districts.

Statements of what the new organization is going to accomplish should be delayed until they become unnecessary. A large number of native people are involved whose thinking cannot be quickly changed by a few field representatives advocating practices alien to tradition. No one knows what the rate of acceptance will be, so it is better to be silent on that subject. Those that welcome the marketing operation can become bitter if unrealistic expectations are not attained as promised.

Middlemen

The commissions of conventional Pakistan middlemen are high, but also have considerable justification. Additional competition is limited by the high risk they bear in handling a small volume, usually of a limited product line, in a single market over a short season. Safer alternatives are available to most businessmen. These people are leaders in producing districts, furnishing initiative to the present system. They have local experience, knowledge, and personal contacts, valuable abilities which should be retained and incorporated into the marketing system of the country. An integral part of initiating a modern prototype marketing organization is to be ready to genuinely assist and cooperate with present perishable produce dealers.

The attitude of local middlemen towards a prototype marketing organization is important because of their numbers and position in the industry. If they feel threatened, the result will be damaging to all concerned. Progress in general, and prototype marketing organization plans in particular, will be greatly impeded. The whole marketing structure will suffer. With opposition, criticism, or accusations, their talents will be diverted into disruptive and destructive activities. With cooperation and assistance, these abilities can be constructive. Progress in their acceptance of new practices may be slow at first, or noncommittal, but an atmosphere of suspicion in the beginning should be avoided.

Table 17. PRODUCT SELECTION BY DISTRICT, page 1
Metric Tons

Tons	District	Product	Pkgs. /Ton	Packages	Rs /Pkg	Grower Advances (000 Rs)	Rs /Pkg	Container Sales (000 Rs)	Rs /Pkg	Packing Charges (000 Rs)	Rs /Pkg	Export Sales (000 Rs)	Rs /Pkg	Grower Return (000 Rs)
1,050	Baddin	Bananas	46.5	48,825	20	976.5	10	488.3	18.5	903.3	105	5,126.6	31.2	1,523.3
3,000	Hyderabad	Bananas	46.5	139,500	20	2,790.0	10	1,395.0	18.5	2,580.8	105	14,647.5	33.1	4,617.5
1,950	Tharparkar	Bananas	46.5	90,675	20	1,813.5	10	906.8	18.5	1,677.5	105	9,520.9	28.7	2,602.4
1,500	Thatta	Bananas	46.5	69,750	20	1,395.0	10	697.5	18.5	1,290.4	105	7,323.8	35.7	2,490.1
7,500	Subtotals			348,750		6,975.0		3,487.6		6,452.0		36,618.8		11,233.3
1,500	Baddin	Mango	90	135,000	20	2,700.0	10	1,350.0	20	2,700.0	175	23,625.0	95.2	12,852.0
3,200	Hyderabad	Mango	90	288,000	20	5,760.0	10	2,880.0	20	5,760.0	175	50,400.0	96.0	27,648.0
4,700	Subtotals			423,000		8,460.0		4,230.0		8,460.0		74,025.0		40,500.0
130	Baddin	Garlic	50	6,500	20	130.0	6	39.0	11	71.5	295	1,917.5	210.5	1,368.3
320	Hyderabad	Garlic	50	16,000	20	320.0	6	96.0	11	176.0	295	4,720.0	208.5	3,336.0
1,000	Sukkur	Garlic	50	50,000	20	1,000.0	6	300.0	11	550.0	295	14,750.0	197.6	9,880.0
1,450	Subtotals			72,500		1,450.0		435.0		797.5		21,387.5		14,584.3
3,600	Baddin	Onions	20	72,000	40	2,880.0	10	720.0	14.8	1,065.6	110	7,920.0	18.4	1,324.8
1,100	Nawabshah	Onions	20	22,000	40	880.0	10	220.0	14.8	325.6	110	2,420.0	15.7	345.4
1,300	Tharparkar	Onions	20	26,000	40	1,040.0	10	260.0	14.8	384.8	110	2,860.0	19.5	507.0
5,500	Kalat	Onions	20	110,000	40	4,400.0	10	1,100.0	14.8	1,628.0	110	12,100.0	8.8	968.0
11,500	Subtotals			230,000		9,200.0		2,300.0		3,404.0		25,300.0		3,145.2
1,000	Baddin	Vegtbls.	46.5	46,500	35	1,627.5	12	558.0	18.5	860.3	110	5,115.0	19.7	916.1
1,700	Hyderabad	Vegtbls.	46.5	79,050	35	2,766.8	12	948.6	18.5	1,462.4	110	8,695.5	21.6	1,707.5
1,800	Thatta	Vegtbls.	46.5	83,700	35	2,929.5	12	1,004.4	18.5	1,548.5	110	9,207.0	24.2	2,025.5
4,500	Subtotals			209,250		7,323.8		2,511.0		3,871.2		23,017.5		4,649.1
2,000	Nawabshah	Citrus	46.5	93,000	30	2,790.0	10	930.0	15	1,395.0	140	13,020.0	52.1	4,845.3
2,000	Khairpur	Citrus	46.5	93,000	30	2,790.0	10	930.0	15	1,395.0	140	13,020.0	44.2	4,110.6
550	Multan	Citrus	46.5	25,575	30	767.3	10	255.8	15	383.6	140	3,580.5	23.9	611.2
4,550	Subtotals			211,575		6,347.3		2,115.8		3,173.6		29,620.5		9,567.1

Table 17. PRODUCT SELECTION BY DISTRICT, page 2
Metric Tons

Tons	District	Product	Pkgs. /Ton	Packages	Rs /Pkg	Grower Advances (000 Rs)	Rs /Pkg	Container Sales (000 Rs)	Rs /Pkg	Packing Charges (000 Rs)	Rs /Pkg	Export Sales (000 Rs)	Rs /Pkg	Grower Return (000 Rs)
200	Kalat	Apples	46.5	9,300	35	325.5	12	111.6	18.5	172.1	212.5	1,976.3	90.9	845.4
200	Pishin	Apples	46.5	9,300	35	325.5	12	111.6	18.5	172.1	212.5	1,976.3	83.2	773.8
200	Quetta	Apples	46.5	9,300	35	325.5	12	111.6	18.5	172.1	212.5	1,976.3	85.0	790.5
2,000	Sibbi	Apples	46.5	93,000	35	3,255.0	12	1,116.0	18.5	1,720.5	212.5	19,762.5	81.0	7,533.0
1,000	Loralai	Apples	46.5	46,500	35	1,627.5	12	558.0	18.5	860.3	212.5	9,881.3	76.6	3,561.9
1,000	Zhob	Apples	46.5	46,500	35	1,627.5	12	558.0	18.5	860.3	212.5	9,881.3	79.1	3,678.2
4,600	Subtotals			213,900		7,486.5		2,566.8		3,957.4		45,454.0		17,182.8
50	Kalat	Apricots	46.5	2,325	35	81.4	12	27.9	18.5	43.0	250	581.3	122.9	285.7
100	Pishin	Apricots	46.5	4,650	35	162.8	12	55.8	18.5	86.0	250	1,162.5	115.2	535.7
100	Quetta	Apricots	46.5	4,650	35	162.8	12	55.8	18.5	86.0	250	1,162.5	116.8	543.1
250	Sibbi	Apricots	46.5	11,625	35	406.9	12	139.5	18.5	215.1	250	2,906.3	113.0	1,313.6
500	Subtotals			23,250		813.9		279.0		430.1		5,812.6		2,678.1
1,000	Khairpur	Dates	46.5	46,500	35	1,627.5	10	465.0	13	604.5	175	8,137.5	73.9	3,436.4
1,500	Panjgoor	Dates	46.5	69,750	35	2,441.3	10	697.5	13	906.8	175	12,206.3	68.0	4,743.0
2,500	Subtotals			116,250		4,068.8		1,162.5		1,511.3		20,343.8		8,179.4
150	Kalat	Grapes	90	13,500	25	337.5	10	135.0	9.3	125.6	212.5	2,868.8	124.1	1,675.4
1,400	Pishin	Grapes	90	126,000	25	3,150.0	10	1,260.0	9.3	1,171.8	212.5	26,775.0	120.2	15,145.2
700	Quetta	Grapes	90	63,000	25	1,575.0	10	630.0	9.3	585.9	212.5	13,387.5	121.1	7,629.3
300	Loralai	Grapes	90	27,000	25	675.0	10	270.0	9.3	251.1	212.5	5,737.5	116.6	3,148.2
700	Zhob	Grapes	90	63,000	25	1,575.0	10	630.0	9.3	585.9	212.5	13,387.5	117.8	7,421.4
3,250	Subtotals			292,500		7,312.5		2,925.0		2,720.3		62,156.3		35,019.5
50	Kalat	Peaches	46.5	2,325	35	81.4	10	23.3	29.8	69.3	250	581.3	114.3	265.7
50	Quetta	Peaches	46.5	2,325	35	81.4	10	23.3	29.8	69.3	250	581.3	108.2	251.6
100	Subtotals			4,650		162.8		46.6		138.6		1,162.6		517.3
300	Kalat	Plums	46.5	13,950	35	488.3	10	139.5	21.8	304.1	210	2,929.5	87.6	1,222.0
300	Pishin	Plums	46.5	13,950	35	488.3	10	139.5	21.8	304.1	210	2,929.5	79.8	1,113.2
200	Quetta	Plums	46.5	9,300	35	325.5	10	93.0	21.8	202.7	210	1,953.0	81.5	758.0
175	Loralai	Plums	46.5	8,138	35	284.8	10	81.4	21.8	177.4	210	1,709.0	73.2	595.7
175	Zhob	Plums	46.5	8,138	35	284.8	10	81.4	21.8	177.4	210	1,709.0	75.8	616.9
1,150	Subtotals			53,476		1,871.7		534.8		1,165.7		11,230.0		4,305.8

Table 17. PRODUCT SELECTION BY DISTRICT, page 3
Metric Tons

Tons	District	Product	Pkgs. /Ton	Packages	Rs /Pkg	Grower Advances (000 Rs)	Rs /Pkg	Container Sales (000 Rs)	Rs /Pkg	Packing Charges (000 Rs)	Rs /Pkg	Export Sales (000 Rs)	Rs /Pkg	Grower Return (000 Rs)
1,800	Kalat	Potatoes	20	36,000	40	1,440.0	10	360.0	14.8	532.8	116	4,176.0	10.7	385.2
1,100	Pishin	Potatoes	20	22,000	40	880.0	10	220.0	14.8	325.6	116	2,552.0	4.6	101.2
2,900	Subtotals			58,000		2,320.0		580.0		858.4		6,728.0		486.4
100	Khuzdar	Pomegr.	46.5	4,650	30	139.5	12	55.8	21.8	101.4	140	651.0	37.4	173.9
50	Pishin	Pomegr.	46.5	2,325	30	69.8	12	27.9	21.8	50.7	140	325.5	23.0	53.5
400	Loralai	Pomegr.	46.5	18,600	30	558.0	12	223.2	21.8	405.5	140	2,604.0	16.3	303.2
250	Zhob	Pomegr.	46.5	11,625	30	348.8	12	139.5	21.8	253.4	140	1,627.5	19.0	220.9
800	Subtotals			37,200		1,116.1		446.4		811.0		5,208.0		751.5
50,000	TOTALS			2,294,301		64,908.4		23,645.2		37,726.4		368,064.6		152,799.8

As the present middlemen see the benefits that modern marketing can bring and realize that they are not excluded from participation, they can profitably fit into the marketing chain as assets to the system. Marketing assistance should be made available, both to existing dealers and to any cooperatives that might be formed.

Market Information

The marketing organization can function as an impartial supplementary reporter of market prices in any market served, since its income does not depend directly on price. Lack of accurate market statistics in developing countries is often criticized in literature. This complaint occurs in connection with perishable markets throughout the world because each interest sometimes gives statistical reporters "end of the range" figures that best support their activities. If marketing is somewhat chaotic, the statistics kept describe conditions in a number of ways, omission, inconsistency, irrational relationships, etc.

Statistics reported in publications of the Pakistan Department of Agriculture are thorough and comprehensive. This report is based on that information. Pakistan agricultural leadership has rightly placed accurate timely market information as a major goal. The Pakistan Department of Agriculture now has an obvious capability in classifying and publishing agricultural information. However, regardless of analytical skills and processing fidelity, the accuracy and usefulness of this data is a reflection of how well the marketing system works. With the emphasis now placed on marketing information, it will improve, but only at the rate that the source in the marketing system becomes more organized.

Accurate timely market information is essential to equitable pricing relative to supply and demand. Planting plans by farmers will be distorted if not based on sound information. It was repeatedly stated in Pakistan that the presently operating contractors and commission agents keep this information to themselves until its utility has passed.

Marketing Zones and Phases of Development

Map 2 illustrates the areas from which produce is to be obtained. In the following discussion Phase I refers to the development work that should be accomplished in the area, Zone 1, before entering the next zone. Phase refers to the work. Zone is the area where that work is done.

The two fundamental objectives of Phase I, and each new zone as it is undertaken, are working out mutually agreeable arrangements with the large number of farmers who will supply the volume and quality needed, and establishing procedures and schedules for collecting and transporting produce with maximum preservation of quality. Coordination of this work is the responsibility of the Production Director (Table 19. Organization).

These two activities are the primary work of each phase in each zone. Twice as many people on the marketing organization payroll will be directly involved in these programs as are required for other steps in the marketing

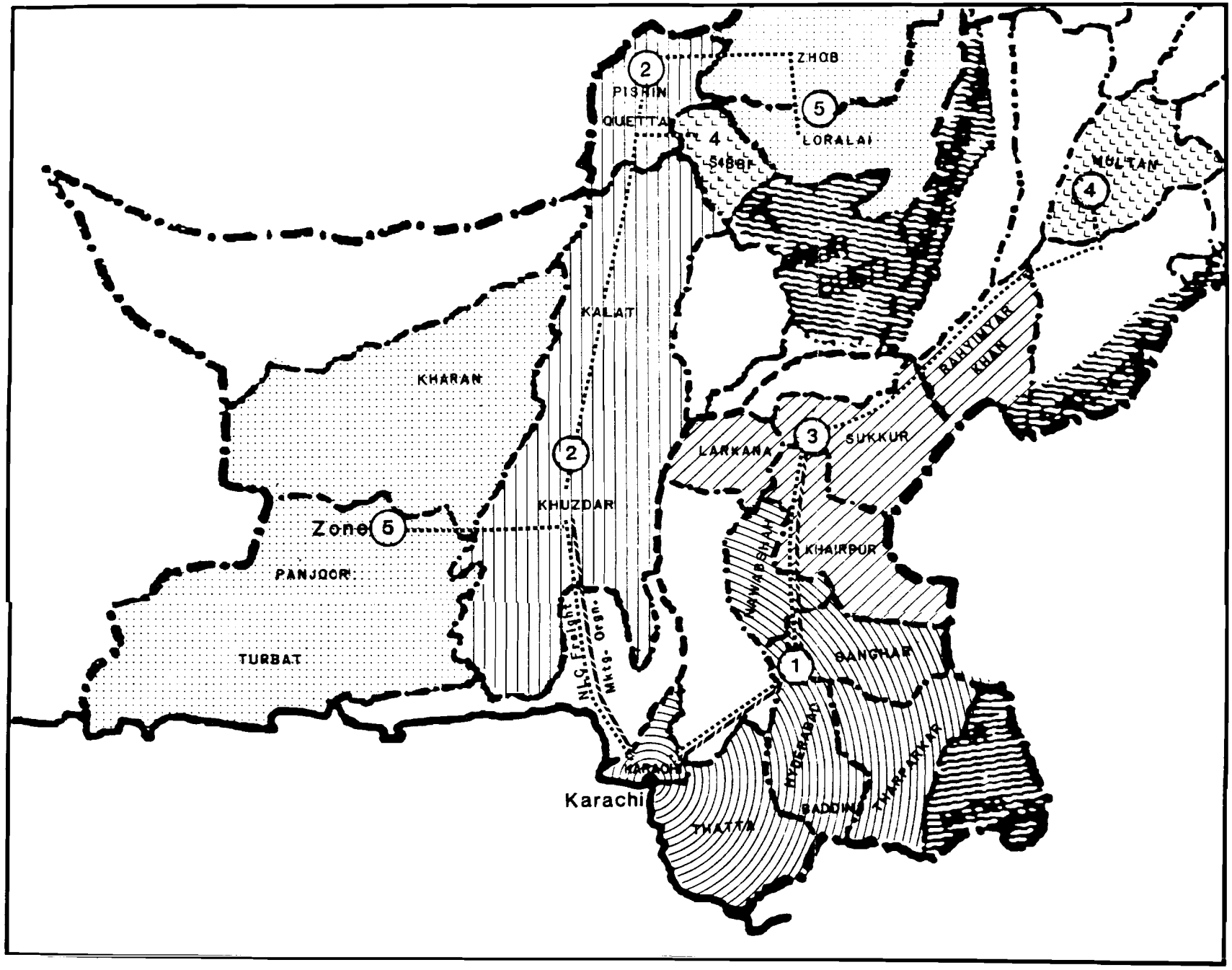
Table 14. SUMMARY OF PROJECTED SEASONAL TONNAGE -- ALL PHASES

Handled by the Marketing Organization, Metric Tons

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Phase I													
Zone 1	1,400	1,380	1,370	1,370	3,300	3,350	3,365	3,365	695	695	2,440	2,420	25,150
Phase II													
Zone 1*	1,540	1,520	1,510	1,510	3,630	3,685	4,015	4,015	765	765	2,685	2,660	28,300
Zone 2	0	0	0	1,840	1,830	2,480	1,180	1,720	1,710	630	580	580	12,550
Total	1,540	1,520	1,510	3,350	5,460	6,165	5,195	5,735	2,475	1,395	3,265	3,240	40,850
Phase III													
Zone 1	1,540	1,520	1,510	1,510	3,630	3,685	4,015	4,015	765	765	2,685	2,660	28,300
Zone 2	0	0	0	2,025	2,015	2,730	1,300	1,890	1,880	690	640	640	13,810
Zone 3	0	0	0	0	500	500	0	500	500	0	1,000	1,000	4,000
Total	1,540	1,520	1,510	3,535	6,145	6,915	5,315	6,405	3,145	1,455	4,325	4,300	46,110
Phase IV													
Zone 1	1,540	1,520	1,510	1,510	3,630	3,685	4,015	4,015	765	765	2,685	2,660	28,300
Zone 2	0	0	0	2,025	2,015	2,730	1,300	1,890	1,880	690	640	640	13,810
Zone 3	0	0	0	0	550	550	0	550	550	0	1,100	1,100	4,400
Zone 4	0	0	0	0	0	250	0	665	670	665	1,000	1,000	4,250
Total	1,540	1,520	1,510	3,535	6,195	7,215	5,315	7,120	3,865	2,120	5,425	5,400	50,760
Phase V													
Zone 1	1,540	1,520	1,510	1,510	3,630	3,685	4,015	4,015	765	765	2,685	2,660	28,300
Zone 2	0	0	0	2,025	2,015	2,730	1,300	1,890	1,880	690	640	640	13,810
Zone 3	0	0	0	0	550	550	0	550	550	0	1,100	1,100	4,400
Zone 4	0	0	0	0	0	275	0	730	735	730	1,100	1,100	4,670
Zone 5	0	0	0	0	0	190	495	2,305	2,300	210	0	0	5,500
Total	1,540	1,520	1,510	3,535	6,195	7,430	5,810	9,490	6,230	2,395	5,525	5,500	56,680

* The tonnage of each zone is increased 10% for the estimated yield increase that will result immediately from improved use of insecticides and from savings in harvest losses that new practices introduced by the marketing organization will effect. Other advances in farm management and cultural practices are likely to be more gradual, but will account for greater gains in the long run.

Map 2. MARKET DEVELOPMENT ZONES and DISTRICTS



chain. Advancement in perishable production depends on them. Succeding processes can only preserve what they have produced. As each zone is entered, these basic programs become more complex with more people, more products, more distinctive localities, a wider range of weather conditions, and more distance. Extension work largely determines the readiness of the prototype marketing organization to undertake a new phase. These topics are discussed in Chapter 4.

In Phase I the Marketing Director and his department will concentrate on selling mangos, bananas, citrus, garlic, onions, and vegetables from Zone 1 to establish a market presence in the Arabian Gulf and other markets by offering an array of fruits and vegetables over an extended portion of the year. Limited volume of three or four items supplied over a short season will not accomplish this.

Duties of the Administrative Director and his department is proportional to commitments made through the other two departments. Reasonable efficiency in all departments can only be attained by pacing the amount of new work in phases.

A Volume Base for Phase II -- Baluchistan

Hauling perishables alone from Quetta to Karachi, without backhaul or additional volume from other areas to extend the shipping season, is not economically feasible in the long term, as the figures indicate in the "Example" in Table 13. The limited volume available from the north does not in itself justify the investment in transportation equipment that is required to secure this volume, nor will it be sufficient alone to support reasonable charges for the services of an adequate marketing system. This factor is largely responsible for the marketing situation now existing in northern Balushistan.

With products grown in nearby Sind over a continuous shipping season, the heavy initial investment in plant and personnel can be spread over a volume that affords reasonable marketing charges to farmers in both Sind and northern Baluchistan. Sind farmers will not be subsidizing the solution of Baluchistan marketing problems. Once a volume base is established employing infrastructure facilities at an economic level, additional volume and assortment strengthen the marketing organization by reducing per unit costs for a more complete supply of produce sold. Both Sind and Baluchistan farmers profit from the combination.

Once a base volume has been secured, arrangements can then be made to pick up commodities produced in Baluchistan, Zone 2. During the second phase of development, with a still wider array of offerings through several seasons of the year, emphasis can be directed by the Marketing Department toward developing mixed shipment sales, (LSL), to merchants in the Arabian Gulf. Currently over ninety percent of the produce entering that area comes in by chartered ocean freight controlled by four receiving wholesalers, yet much interest has been indicated by many Arabian Gulf merchants for representing fruit and vegetable imports. Pakistan is in a unique position to fill this need if the produce is of export quality and if consistent supplies are offered. Making a mixed shipload of such a wide variety of produce is more difficult elsewhere because of ocean freight time and cost.

Table 8. **ZONE 1**

District	Km	Crop	Tons	ha	Yield T/ha	Mktg. Orgn.	Loads	Truck Days	Frt/ 20Kg
Baddin	190	Bananas	10,426	1,153	9.04	1,050	51	43	4.6
24.5°N,69°E	190	Mangos	15,336	1,845	8.31	1,500	73	62	4.6
	190	Garlic	1,323	316	4.19	130	6	5	4.6
	190	Onions	36,155	3,881	9.32	3,600	176	149	4.6
	190	W. Veg.	12,900	3,300	3.91	1,000	49	41	4.6
Hyderabad	150	Bananas	29,976	3,095	9.69	3,000	146	97	3.6
25°N,69°E	150	Guava	2,636	430	6.13	0	0	0	3.6
	150	Mangos	71,966	8,344	8.62	3,200	156	104	3.6
	150	Garlic	3,223	465	6.93	320	16	11	3.6
	150	Onions	88,472	9,223	9.59	0	0	0	3.6
	150	W. Veg.	30,600	5,800	5.28	1,700	83	55	3.6
Nawabshah	265	Citrus	19,485	1,211	16.09	2,000	98	115	6.4
26°N,68°E	265	Mangos	32,118	3,665	8.76	0	0	0	6.4
	265	Onions	10,986	1,212	9.06	1,100	54	64	6.4
Sanghar	220	Mangos	47,248	6,876	6.87	0	0	0	5.3
26°N,69°E									
Tharparkar	250	Bananas	19,532	2,076	9.41	1,950	95	106	6.0
25.5°N,69.5°	250	Mangos	47,149	6,770	6.96	0	0	0	6.0
	250	Onions	25,735	2,735	9.41	1,300	63	70	6.0
Thatta	90	Bananas	29,510	3,636	8.12	1,500	73	29	2.2
24°N,68°E	90	Veg.	18,700	5,200	3.60	1,800	88	35	2.2
Freight Totals							1227	986	4.3

Marketing Organization Tonnage

Crop	Baddin	Hyder-abad	Nawab-shaw	Thar-parkar	Thatta	Total
Bananas	1,050	3,000		1,950	1,500	7,500
Mangos	1,500	3,200				4,700
Citrus			2,000			2,000
Garlic	130	320				450
Onions	3,600		1,100	1,300		6,000
Vegetables	1,000	1,700			1,800	4,500
Totals	7,280	8,220	3,100	3,250	3,300	25,150

Table 13. **REQUIRED TRANSPORTATION EQUIPMENT**

To Haul Perishables, No Backhaul, No Supplemental Offseason Freight

Phase Zone	Trucks	Refrig. Vans	Invest-ment (000 Rs)	Annual Tons	Invstmt. per Ton Mktg.Vol. (Rupees)	Depreci-ation Cr./ton (Rupees)	Years to Recover Invstmt.* by Deprec.
Example:							
Zone 2	25	30	51,014.0	12,550	4,064.86	253.79	16.02
As Planned:							
Phase I	9	14	20,273.2	25,150	806.09	113.80	7.08
Phase II	26	31	55,008.5	40,215	1,367.86	157.48	8.69
Phase III	4	5	63,290.0	45,470	1,391.91	172.36	8.08
Phase IV	1	2	65,807.6	48,670	1,352.12	195.82	6.90
Phase V	17	25	103,240.1	54,445	1,896.23	232.04	8.17

* As projected depreciation constitutes 32.12 percent of gross freight revenue after allowance for 16.67 percent return on equipment investment (10.82 percent of freight revenue.)

Truck requirement is determined by the greatest tonnage month occurring during the year. An allowance for acceleration above the average due to warm periods (30 percent), and for standby truck capacity (20 percent) increase that tonnage by 50 percent. These insurance factors are necessary to protect quality when handling perishables. Divide adjusted peak tonnage by 20.5 tons to estimate the number of loads. Divide number of loads by round trip time multiplied by 22 shipping days in a month for the number of trucks needed. Add one refrigerated van for each district, and 125 percent of the number of trucks to equip the fleet with refrigeration.

Freight rates are based on the National Logistic Cell rate of 64.9 paisa per metric ton per kilometer plus 60 percent for refrigerated service. The charge for refrigerated service is based on the differential between dry and refrigerated service prevailing in the United States adjusted for ambient temperature.

The Karachi Plant can be expanded by 500 tons of cold storage in Phase II. The additional space will be needed for the volume of business projected, for storing produce beyond harvest peaks to level prices and to allow space for shipments by independents in Quetta to other domestic markets.

Table 9. **ZONE 2**

District	Km	Crop	Tons	ha	Yield T/ha	**Mktg. Orgn.**	Loads	Truck Days	Frt/ 20Kg
Kalat	550	Apples	9,570	793	12.07	200	10	24	13.2
29°N, 66°E	550	Apricots	2,440	157	15.54	50	2	5	13.2
	550	Grapes	1,500	159	9.43	150	7	17	13.2
	550	Peaches	1,290	125	10.32	50	2	5	13.2
	550	Plums	2,700	157	17.20	300	15	37	13.2
	550	Onions	54,850	3,616	15.17	5,500	268	655	13.2
	550	Vegtbls.	12,700	1,100	11.55	0	0	0	13.2
	550	Potatoes	18,300	1,942	9.42	1,800	88	215	13.2
Khuzdar	400	Pome-granates	6,870	332	20.69	10Zone	50 5	9	9.6
28°N, 66.5°E									
Pishin	725	Apples	10,600	1,562	6.79	200	10	32	17.4
30°N, 67°E	725	Apricots	6,440	512	12.58	100	5	16	17.4
	725	Grapes	13,650	1,023	13.34	1,400	68	219	17.4
	725	Peaches	1,220	91	13.41	0	0	0	17.4
	725	Plums	2,550	165	15.45	300	15	48	17.4
	725	Pome-granates	2,540	159	15.97	50	2	6	17.4
	725	Vegtbls.	15,000	1,300	11.54	0	0	0	17.4
	725	Potatoes	11,200	1,102	10.16	1,100	54	174	17.4
Quetta	690	Apples	8,440	1,034	8.16	200	10	31	16.5
30°N, 67°E	690	Apricots	3,220	254	12.68	100	5	15	16.5
	690	Grapes	7,400	623	11.88	700	34	104	16.5
	690	Peaches	2,180	214	10.19	50	2	6	16.5
	690	Plums	2,030	184	11.03	200	10	31	16.5
	690	Vegtbls.	7,400	700	10.57	0	0	0	16.5
Freight Totals							612	1649	14.5

Marketing Organization Tonnage

Crop	Kalat	Khuzdar	Pishin	Quetta	Total
Apples	200		200	200	600
Apricots	50		100	100	250
Grapes	150		1,400	700	2,250
Onions	5,500				5,500
Peaches	50			50	100
Plums	300		300	200	800
Pomegranates		100	50		150
Potatoes	1,800		1,100		2,900
Vegetables, Sum.					0
Totals	8,050	100	3,150	1,250	12,550

Phase III in Zone 3 assumes that Baluchistan and southern Sind markets have been equalized relative to the cost of location, domestic prices have receded to the level of international competition, export receivers have become confident of Pakistan supplies, and that additional volume can be moved. Rather than concentrating in Zones 1 and 2, thus restricting the advances associated with a modern marketing system to these areas with the possibility of disrupting local market structure by domination, additional supplies and products can be obtained from Zone 3. Further diversification in product line and sources of supply compensate the marketing organization. Phase III can be characterized as the maturing phase in prototype marketing development.

Phase 1 establishes a volume base, quality control procedures, continuous market presence, and a grower relations and assistance program.

Phase II utilizes the accomplishments of Phase I to gain the objective of the overall program to create a marketing outlet for Baluchistan farmers. Phase II also widens the array of products that can be offered in Arabian Gulf markets once production is stimulated enough to satisfy domestic demand, and makes available to independent produce handlers the opportunity of participating in the marketing system by using improved containers, public refrigerated freight service, and cold storage facilities to the extent not needed by client growers. The capacity of the Karachi cold storage plant will be expanded by 500 tons.

In Phase III a cold storage plant of 1,000 ton capacity duplicating the original plant built in Karachi, with improvements learned from local experience, will be constructed in Hyderabad to provide for increasing volume of produce handled by the prototype marketing organization and by participating independents from northern Baluchistan and Sind. This plant would be located in an agricultural area and will shorten the distance between growers' fields and the critical pre-cooling operation that is more rapid at the plant. This will improve the quality of many fruits and vegetables harvested during the warmer parts of the year.

It may not be prudent to divert 2,000 tons of citrus from the Khairpur market as Phase III is commenced. Experience will have been gained to guide entering new localities peacefully and constructively. In any case, the principle of avoiding undue market disturbance should be observed. By that time, the increased production that can be realized by farmers having the extension services of the prototype marketing organization should become apparent, and the availablity of improved containers and public refrigerated freight service should be generally known to independent produce handlers.

Ample supplies of citrus are now available to the Arabian Gulf market. Pakistan produces good Mandarin type tangerines (Kinnow) that are popular in that market and move in substantial tonnage, 43,500 tons of citrus products currently moving through Kuwait--the third largest Arabian Gulf distribution center. Foreign competition is keen, but Pakistan has lower costs, both in production and ocean shipping rates, compared to foreign sources. However, it will also be necessary to meet the competition of quality in order to capitalize on Pakistan's other advantages.

Table 10. **ZONE 3**

District	Km	Crop	Tons	ha	Yield T/ha	Mktg. Orgn.	Loads	Truck Days	Frt/ 20Kg
Larkana	400	Guava	4,884	815	5.99				9.6
27.5°N,69°E	400	Mango	7,944	1,007	7.89				9.6
Khairpur	425	Citrus	10,441	1,178	8.86	2,000	98	185	10.2
28°N,69°E	425	Dates	53,654	6,323	8.49	1,000	49	93	10.2
	425	Mango	27,856	3,426	8.13				10.2
Rahyim Yar	625	Citrus	99,870	10,768	9.27				15.0
Khan	625	Dates	29,796	3,801	7.84				15.0
28°N,70°E	625	Guava	11,004	1,634	6.73				15.0
	625	Mango	81,680	6,325	12.91				15.0
Sukkur	450	Dates	13,112	1,422	9.22				10.8
27.5°N,69°E	450	Garlic	5,099	854	5.97	1,000	49	98	10.8
Freight Totals							196	376	10.2

Marketing Organization Tonnage

Crop	Lark-ana	Khair-pur	Rahyim Yar Khan	Sukkur		Total
Citrus		2,000				2000
Dates		1,000				1000
Garlic				1,000		1000
Totals	0	3,000	0	1,000	0	4,000

Dates are in demand by industrial users in the United States. These manufacturers of finished food products, such as cereals, granolas and candy, require uniform high quality and consistent availability from year to year. Anything less jeopardizes large investments in advertising and in fully utilizing expensive processing and consumer packaging plants. Industrial users are not interested in a good deal for one year, because it is a small part of the cost of putting a ready-to-eat product within the reach of consumers. The consensus of industrial users in the United States is that supplies from Pakistan fail to meet their requirements one year out of three because of monsoon rain damage. In phase III methods for consistently preserving the quality of Pakistan dates will be explored. If effective methods can be developed for

preserving the quality of Pakistan dates at Khairpur, they can later be easily applied in Panjgur where the monsoon effect is less because of the lower elevations of mountains to the north.

Plans in Phase III for marketing garlic are relatively ambitious, for it projects Pakistan supplying a major share of the Arabian Gulf market with this profitable item. Garlic is easy to handle because of it being the least perishable of the products selected. Superior planting material, as divided cloves, can be supplied to farmers. It is a crop ideally suited to production by small farmers. Once a superior variety is introduced and cultural practices are modified, then packaging in small quantity units of uniform grade should improve the demand for garlic much beyond the 25 tons shown as exports in the year 1980-81.

Current garlic consumption of 1,500 tons in Kuwait is reported by Mr. Mohammad Aslam. This figure indicates a total Arabian Gulf market for imported garlic to be around 6 to 8 thousand tons. Individual retailers of the region require a constant supply of good grade garlic in small, well-ventilated packages, that is, net bags of not more than ten kilograms. Even though garlic is normally sold from bulk bins in retail outlets, merchants do not find larger quantities of nondescript quality supplied in tight burlap bags to be suitable.

Philippe Dardell, in his study of fruit production in Baluchistan, estimated a normal retailer markup of 75 percent, which is not high compared to prevailing markup percentages of around 100 percent used by supermarket chains in the United States for produce lines. Justification for retailer markup is the loss in saleable quantity that retailers must absorb in handling perishables. Any improvement a marketing organization can make in quality preservation or uniformity in grade increases the profitability of retail merchants by reducing shelf losses.

Garlic is a simple, good example of what marketing can do to attract retailer demand. If a retailer receives a small quantity of uniform garlic, it moves through his store in a short time with minimal loss of weight. If the same retailer receives a large package of varying quality, consumers will pick out the best quality in the shipment then wait for a new shipment before purchasing again. The residual of lower grades by moving slowly, if at all, loses much weight while the retailer's customers buy from another merchant in the suq who has more recently purchased a similar large bag of unsorted garlic, which will be picked over by the same consumer reaction into a similar loss for the competing retailer.

Garlic is no different than more perishable items. The length of its shelf life just makes consumer reaction to nonstandardized grades more apparent. Consumer selection, or shopping between competing retailers, happens so quickly with more perishable items, say papayas, that it is easily confused with product breakdown. Yet the real reason for a retailer's loss in saleable product is caused by consumer reaction to nonuniform grading within a package. If grading is uniform and packaging is appropriate, a retailer can regulate his purchases more accurately to the demand of his customers.

Arabian Gulf markets are becoming more sophisticated and mature. The central emphasis of Phase III and succeeding phases should be to meet receiver

requirements in uniform grading, proper packaging, and inherent quality of product preserved all through the marketing process until it reaches the receivers. As distances, localities, numbers of supplying farmers, and the volume and assortment of products increase, maintaining these standards requires more skill, but can be successfully attained if expansion of the prototype marketing organization is kept in balance with its experience and efficiency.

The remaining phases of the plan are less complex and smaller in magnitude than the first two, and are planned as logical increments of growth. Nevertheless, each phase has specific marketing objectives.

Citrus production in the Multan district is increasing. Citrus quality from this district is reported to be the best in Pakistan which would naturally result from the aggressiveness demonstrated by its farmers in increasing production. While the Arabian Gulf market is well supplied with citrus products, the quality and cost of production in Pakistan may give the advantages necessary to wrest a major portion of the market from other international suppliers. Cultural practices and marketing organization efficiency must be in top form to do this. Although Multan is considerably more distant than other citrus producing areas, it is also the largest in citrus production and appears to have the type of progressive farmers that will be receptive to meeting a marketing challenge.

Another aspect of the work of Phase IV will be to seriously enter the export market for apples. If present domestic prices for apples are translated into production stimulation in Phase II, the domestic demand will have an ample supply of good quality apples at moderate prices. Relying again on Pakistan's cost of production and the considerable ocean freight advantage afforded to growers by the National Shipping Corporation, Pakistan will then be in a position to enter export competition in apples which is just as competitive as citrus. If all of these advances take place, diverting 2,000 tons of apples from Sibbi should not disturb, but be welcomed, in that market as well as in other Baluchistan markets.

Successful completion of Phase IV will establish Pakistan as a major international competitor, receiving its just share of the Arabian Gulf market.

To be effective in remote localities, the marketing organization must have considerable maturity: Extension services to farmers working smoothly, a well established volume base, general acceptance of the efficacy of its practices, and all of the components of perishable marketing operating profitably from other sources of supply. The need for a marketing outlet in these areas is urgent, but these are not the places to start solving the problem. Starting from these points will result in about the same difficulties as are now encountered by the present middlemen with high attendant marketing costs.

Having developed marketing muscle to handle a wide assortment of products grown under advanced cultural practices, first supplying domestic food at reasonable prices, and having the capability of securing international prices for uniform quality products, the prototype marketing organization would then be equipped to extend the benefit of its services to the more remote localities of Baluchistan in Zone 5, principally Loralai, Panjgur, and Zhob. As volume increases, marketing access can be expanded to Kharan and Turbat.

Table 11. **ZONE 4**

District	Km	Crop	Tons	ha	Yield T/ha	**Mktg. Orgn.**	Loads	Truck Days	Frt/ 20Kg
Multan	875	Citrus	169,024	13,077	12.93	2,000	98	381	21.0
30.5°N,69°E	875	Mango *	91,995	7,124	12.91				21.0
	875	Guava	3,988	663	6.02				21.0
Sibbi	765	Apple	11,970	1,372	8.72	2,000	98	333	18.3
30°N, 68°E	765	Apricot	1,120	137	8.18	250	12	41	18.3
Freight Totals							208	755	19.6

* An ample supply of mangos is available in districts nearer to Karachi and Hyderabad.

Marketing Organization Tonnage

Crop	Multan	Sibbi	Total
Apples		2,000	2,000
Apricots		250	250
Citrus	2,000	0	2,000
Total	2,000	2,250	4,250

Table 12. **ZONE 5**

District	Km	Crop	Tons	ha	Yield T/ha	Mktg. Orgn.	Loads	Truck Days	Frt/ 20Kg
Loralai 30.5°N,68.5°	860	Apples	4,480	757	5.92	1,000	49	187	20.6
	860	Apricots	7,160	624	11.47				20.6
	860	Grapes	1,320	147	8.98	300	15	57	20.6
	860	Plums	1,170	86	13.60	175	9	34	20.6
	860	Pome-granate	8,000	337	23.74	400	20	76	20.6
Kharan 28.5°N,65.5°E	640	Dates	11,390	1,287	8.85				15.3
Panjgur 27°N,64°E	550	Dates	16,370	1,637	10.00	1,500	73	178	13.2
Turbat 26°N, 64°N	525	Dates	41,460	4,264	9.72				12.6
Zhob 30.5°N,69°E	800	Apples	3,390	480	7.06	1,000	49	174	19.2
	800	Apricots	6,240	526	11.86				19.2
	800	Grapes	3,540	307	11.53	700	34	121	19.2
	800	Plums	280	67	4.18	175	9	32	19.2
	800	Pome-grante	1,220	75	16.27	250	12	43	19.2
Freight Totals							270	902	18.0

Marketing Organization Tonnage

Crop	Loralai	Kharan	Panjgur	Turbat	Zhob	Total
Apples	1,000				1,000	2,000
Dates			1,500			1,500
Grapes	300				700	1,000
Plums	175				175	350
Pomegranates	400				250	650
Total	1,875	0	1,500	0	2,125	5,500

Chapter IV. Improvements Required

INFRASTRUCTURE IMPROVEMENTS

Cold Storage Plant

A cold storage plant located near the port of Karachi can be constructed at an estimated cost of 4.7 million rupees. This plant will have five storage rooms opening into a center aisle. One of the rooms will have additional capacity in refrigeration and air circulation for pre-cooling, making that compartment a dual purpose area that can be used either for pre-cooling or for storage. Pre-cooling is the most critical and costly process in cold storage plant operation accounting for a major part of packing charges for products packed in the grower's field.

Each compartment would have a 10 foot by 10 foot insulated horizontal single slide cooler door for forklifts to enter the compartments. A sixth compartment would be divided into two rooms, one containing mechanical and electrical equipment and the other equipped to fumigate produce with gas. The cold storage building and equipment is designed with a capacity for later construction of four additional cold storage compartments.

Packing

A separate building adjacent to the cold storage building will contain a multi-purpose packing line with the capability for sorting, washing, brushing, waxing and packing. A third building for offices will be needed. The size and design of this building will depend on where the plant is located, and whether or not it is to have office space for the entire staff or for only storage plant personnel.

Packing charges for the various commodities are shown below. Rates for packing at the plant from field boxes include the cost of receiving, grading, pre-cooling, sorting (size), packing, fumigating, brushing or washing, packing materials such as panapak trays in the case of mangos and peaches or decay inhibiting wrapping for Kinnow, controlled storage for thirty days and loading either onto trucks at the plant for domestic markets, or onto vessels for ocean shipping. Packing rates are reduced for products packed by growers to allow for sorting, grading and placing labor. Field packing of certain products can be supervised, but not performed by the marketing organization.

Packing Services Rates

Product	Where Packed, Type	Net Product Weight Kilograms	Packing Charge Rs./Package
Apples	Field, placed & wrapped	18.5	18.5
Apricots	Field, bulk fill	18.5	18.5
Bananas	Field, bulk fill, bunches, cushioned	18.5	18.5
Citrus (Kinnow)	Plant, washed, waxed, placed & wrapped	18.5	15.0
Dates	Field, bulk fill	18.5	13.0
Garlic	Plant, net bag	10	11.0
Grapes	Field, placed & wrapped	10	9.3
Mangos	Plant, panapak, waxed	10	20.0
Onions	Plant, net bags	25	14.8
Potatoes	Plant, burlap bags	50	14.8
Peaches	Plant, panapak or wrap	18.5	29.8
Plums	Plant, bulk fill	18.5	21.8
Pomegranates	Plant, placed & wrapped	18.5	21.8
Processing Grades	Field, bulk in field boxes	20.0	8.0

Container Manufacturing

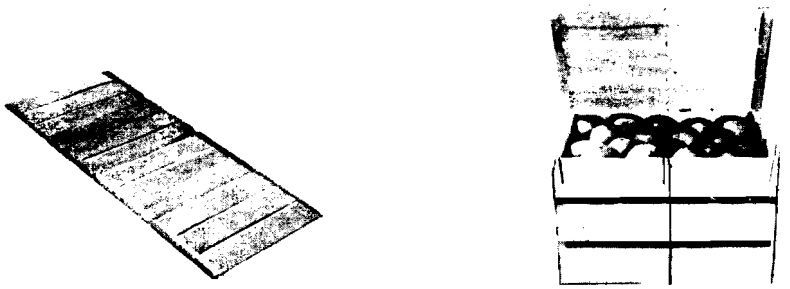
A fourth building contains machines for manufacturing standardized wirebound containers. Wirebound containers made of wood, reinforced with galvanized wire stapled into the wood with hooks for closing, are a very satisfactory design for non-conifer woods, such as are now used in Pakistan. Wirebounds can be transported flat and can be reused numerous times, reducing the need for importing lumber. Wirebounds can economically be made stronger than containers constructed from other materials, are weather resistant, not requiring sheltered storage, and can be cleaned for reuse.

Table 125 of Agricultural Statistics of Pakistan, 1981 shows imported non-conifer (hardwood) to be valued at 519 rupees per ton, whereas conifer lumber costs nearly twice that amount at 974 rupees per ton. While these prices are not the cost of wood in box making, they do show the cost relationship between the two types of lumber. The imported cost must be added to the expense of sawing this lumber into dimensions that are presently used in making conventional Pakistan crates.

A metric ton of conifer lumber is about 2,250 board feet. Non-conifer (hardwood) weight varies with the particular variety of broad leaf tree that it is taken from. Non-conifer wood from Malaysia has about 2,500 board feet per ton and can be sawed into narrower thicknesses because of its strength and resilience. These are the reasons for its general use as shook. The disadvantage of hardwood is that it does not nail easily. Inexpensive box nailing machines cannot be used with hardwoods. Elaborate and expensive stapling

machines are required for making hardwood containers in addition to a veneer mill to cut narrow thicknesses of shook. The justification volume for a wirebound manufacturing plant, not including a veneer mill, is one million containers or more. Fortunately the shook now used in Pakistan for produce containers is of the right dimension for making wirebounds of exceptional strength. Such a container is desirable for the conditions and use anticipated. Container cost to growers: 10 rupees (18.5 Kg net product), 2 rupees added where wrapping papers, or other additional special packing materials like panapak trays, are included.

Wirebound crates provide the needed design features that protect perishables in transit. The ends of each container are framed with members to support the weight of the product vertically between tiers. Wirebound construction forms a resilient tube between the two weight supporting ends. The weight of the product in each container is free of supporting the weight of other containers above it. That weight support is carried to the bottom of the load through the framed ends of the crates, called battens, in the container trade. Figure 1A illustrates a wirebound container for apples, as it comes from the manufacturing plant, flat for easy shipping to the field or storing at the plant as inventory. Part B of the illustration shows a wirebound filled with apples. For a detailed description of the design and manufacture of wire-bounds see the Appendix.



A B

Figure 1.

The initial capital expenditure for wirebound manufacturing equipment is 5.3 million rupees, a large expenditure that will economically solve container problems if a million or more containers are made each year. There is a possibility of acquiring this equipment second hand after it is thoroughly reconditioned at a lower price. Many wirebound manufacturing plants have been discontinued in the United States, most recently in Florida, because of the high cost of hardwood veneer in comparison to the alternative cost of corrugated cardboard containers which also can be shipped flat, or the cost of styrofoam containers, which cannot be shipped flat and must be made in volume near the growing area. Finding these machines will take some time inquiring with individual shippers. The few firms supplying wirebound manufacturing equipment know where the plants are located, but do not make the information available in hopes of selling new equipment.

Paper products made of rice straw do not have the coarse fiber (lignin) content to give corrugated cardboard containers made of Pakistan raw materials

the necessary strength to be suitable for produce shipping. Importation of cardboard for containers is impractical because of the volume/weight ratio effect on ocean shipping rates. A major source of hardwood lumber is Malaysia, which is nearer to Pakistan than it is to the United States, thus accounting for the difference in hardwood material cost. Hardwood is relatively expensive in the United States compared to other alternatives. Hardwood is the most economic material for making containers in Pakistan and has the further saving of reuse capability. At the present stage of development other alternatives are not economically available.

Lugs, containers that are half the size of a standard crate, are necessary for shipping grapes and mangos. Lugs can be made with a simple nailing machine after the shook is dimensioned, but these containers must be made near the point of use because they cannot be shipped flat and must be made of conifer lumber. Lids for lug containers can be made with the wirebound equipment as light-weight battens. Nailing machines are not expensive and are estimated to cost 105,000 rupees in Pakistan after 30 percent is added to the U.S. cost (CIF Pakistan). The additional cost of conifer lumber would be offset by the high value per unit of weight of these two perishables. Grower cost per lug: 10 rupees, including decay inhibiting wrapping papers.

Entering the container manufacturing business is an integral part of the marketing chain. Compromising the performance of containers by design, or any other of the linking processes in perishable distribution, is not logical. The effectiveness of each link depends on the efficiency of those before it. Overall strength, regardless of individual components, is determined by the weakest link. Many citations are made in the literature emphasizing the need for improved produce containers in developing countries.

The estimated cost of these containers to growers is based on the fact that small lots of handmade crates are available in Baluchistan for 8 rupees per unit. The additional cost of 2 rupees per unit to protect the contents selling for 200 rupees or more, will pay high dividends to growers. Currently used packaging costing 8 rupees per unit is not effectively protecting quality.

Refrigerated Land Transportation

Refrigerated highway transportation is a necessary link in the marketing system between the grower's field and the cold storage plant, and later to domestic markets or ocean-going vessels, if loss of quality is to be avoided.

Refrigerated freight rates charged to farmers are based on the National Logistic Cell rate of 64.9 paisa per ton, per kilometer, plus 60 percent premium for refrigerated service. The refrigeration premium was calculated from the prevailing rates in the United States for dry freight and refrigerated service. At the height of the perishable shipping season, dry freight from California to New York is $6.42 per hundred weight compared to $11 per hundred weight for refrigerated service. Premium for refrigerated service varies seasonally according to the volume being shipped and the availability of refrigerated vans. Ambient temperatures during the shipping seasons are higher in Pakistan because of more southern latitude. Cost of operating refrigerated equipment is higher per hour of use, but this expense

is small relative to the per package cost of investment which is reduced by the volume afforded in extended seasons.

Refrigerated vans will cost 55 percent more delivered in Pakistan than they do in the United States because of the high ocean freight rate based on cubic volume rather than weight. Savings can be made on this freight by filling the vans with other imported equipment necessary for the marketing system.

Applying a 60 percent premium to Pakistan freight rates over the prevailing standard rate of NCL is based on two offsetting factors. Refrigerated vans will cost as much as 55 percent more in Pakistan, but by virtue of the extended season over which produce is shipped from Zone 1, and the fact that schedules can be arranged by the marketing organization, it is thought that these two opposing factors will be about equal. Detailed calculation will not be repeated here, but the principle can be observed by comparing seasonal tonnage of Zone 1, Table 15, with the normal use of refrigerated service in the United States that is more like seasonal shipments from Zone 2, Table 16 shown in Chapter III, page 38, with the discussion of a volume base for Baluchistan marketing.

Nine heavy duty trucks with a fleet of fourteen refrigerated vans can supply plant capacity from Zone 1. In Phase I, critical development work must be done on systematic procedures in handling perishables with maximum quality perservation from the growers field to the plant. The whole concept is new, and requires definition and training to control schedules and quality. In Phase I, transportation and operating personnel should be directly supervised and paid by the marketing organization. Learning, actually pioneering, will be necessary by both expatriate and Pakistan personnel. Once procedures have been established for adequate quality control under Pakistan conditions, and are generally accepted as being effective, then further expansion in the transportation system can be done by other trucking organizations that are already in business.

After Phase I, it is contemplated that the marketing organization will supply 24 refrigerated vans to the National Logistic Cell, or possibly other capable trucking firms, to haul produce from Zones 2, 3, 4 and 5, as those phases are undertaken. Refrigerated freight procedures and schedules are key parts of making the marketing system work. These are part of the goal that is to be attained in the work of Phase 1. Once established and accepted, further entry into the freight business would not be necessary, nor desirable by the marketing organization, if suitable service can be provided by other organizations.

Backhaul, particularly for produce brought from Zone 2, is an important factor in freight rates. At the present time, most freight is hauled toward Quetta from Karachi, with very little backhaul cargo. Existing trucking firms need the backhaul that produce shipments from northwestern Baluchistan will create. The marketing organization would provide 24 refrigerated vans for obtaining produce supplies from Zone 2, and would receive fixed annual lease payments in lieu of the refrigerated premium portion of the freight rate. The trucking firm would pay for operation and maintenance of the refrigerated van. In compensation, the common carrier would have the savings of using this equipment for backhaul cargo and income from hauling refrigerated produce.

Beginning with Phase II, for freight from Zone 2, it is more logical for the marketing organization to employ the services of established transportation organizations rather than duplicating these facilities by seeking permits for backhaul. Leasing refrigerated vans to trucking firms is included in the prototype marketing program as a catalyst for expanding refrigerated service into the national freight system. Fitting well in the freight pattern as counterflow cargo, it is expected that further increases in produce volume will be equipped by the trucking industry at a profit to that industry.

One of the goals of Phase II is to preserve and enhance the activities of the present middlemen and cooperatives, existing or newly formed, in the market structure by making available to them the information learned in Phase I, improved packaging, and cold storage space not used by client farmers. Adoption of advanced techniques by independent groups requires public refrigerated transport, as well as improved packaging and available transit cold storage. Using refrigerated transport services of a local, but not fully understood, competitor will impede acceptance of advanced perishable handling practices by the existing local produce merchants and unduly complicate public relations of the prototype marketing organization. The prototype organization can pioneer establishing the necessary elements of the marketing chain, but it cannot be the sole vehicle for public expansion of the marketing structure.

Freight rates, adjusted for distance, are applied uniformly to all zones in computing grower returns. Only those revenues earned from freight equipment owned by the marketing organization are shown in the income portion of the operating statement (Chapter IV). The remainder of the freight charges to growers will be paid to common carriers.

Chartered Ocean Shipping

The Pakistan National Shipping Corporation has a refrigerated vessel with a capacity of 25,369 cubic feet, which they will provide to the marketing organization under a six month charter agreement for shipments to Dubai or Kuwait, at a rate of 10 U.S. dollars per ton. The vessel can make one trip per week, carrying 273 tons of net produce. Another refrigerated vessel of twice that capacity is available when needed; it is now being repaired. The rate quoted by the National Shipping Corporation is fortunate to exporting plans. The rate is very low compared to refrigerated container shipments from the United States, now supplying grapes, apples and pears to the Arabian Gulf, and is probably much lower than a rate acceptable to Arabian Gulf importers owning chartered ships.

The capacity of the first ship is adequate for the volume of exports that can be made in Phase I. The excellent cooperation offered by the National Shipping Corporation is a key factor in increasing income returned to farmers and foreign exchange earned from exported perishables. A major portion of the produce going into the Arabian Gulf market is controlled by four firms who own refrigerated ships. The many Arabian Gulf brokers who are seeking produce can be supplied from Pakistan.

Air Freight

In the United States the airline industry is in a severely competitive

condition of overcapacity. Air freight rates within this country are presently as low as can be obtained consistently anywhere, yet only early season shipments of highly perishable produce from California to the eastern markets are commonly made. Strawberries and early-season asparagus make up most of the volume. Papaya and early season mangos may be Pakistan equivalents.

Air freight has been frequently discussed as a means of exporting, but it has not developed in the U.S. into practical, economic means of moving a significant volume of the more staple perishables. Air freight from Karachi to the Arabian Gulf is something like 3.6 to 4 rupees per kilo. Air freight would consume half of a farmer's return compared to ocean freight for mangos shipped to Kuwait, and is not necessary if quality protection and appropriate transportation schedules, field to truck, truck to plant, plant to Arabian Gulf, are maintained.

Air freight has a place in introducing small lots of early season production to Arabian Gulf wholesalers to acquaint them with current season quality from Pakistan that will be available later in the season. Air freight can be justified for promotion, but it is not likely to be a means for significantly increasing export volume. Mr. Mohammad Aslam, Commercial Secretary of the Pakistan Embassy in Kuwait, recently advised by telex that mangos available in Kuwait, arriving by air, sell at wholesale prices of 16.5 to 20.2 rupees per kilo. Air freight for mangos is an economic alternative, but perhaps not the best one at the height of the harvest season. Lower concessionary air freight rates can be a real asset in promoting Pakistan perishables, and will not be of a volume that burdens Pakistan International Airways.

QUALITY CONTROL PRACTICES

Field Boxes

Sturdy field boxes designed for repeated service will be loaned to growers for use in their harvesting operation. The field boxes will also be designed to contain 20 kilograms of sorted net product without bruising. Field men representing the marketing organization will encourage growers to harvest their crop in the early hours of the morning as is the universal practice wherever quality is being preserved. Growers will place uniformly filled field boxes in the shade by an access road and be responsible for security until their produce is picked up.

A key point in harvesting is to pick the fruit at a time when its internal temperature is lowest, which occurs at 5 or 6 o'clock in the morning. Meeting this requirement is no imposition on growers, because it is a most pleasant time of day to work, and is necessary to their obtaining maximum returns.

Returns to growers will be based on uniformly filled field boxes as a unit of measure, and on the product grades of his harvest as determined by the marketing organization field man. Growers will be thoroughly indoctrinated well before the season begins with quality control procedures and acceptable grade specifications. Produce not meeting the mutually agreed specifications will not be accepted. Some variation from the standard objective will occur, particularly with new growers, which will be assessed by the field men before

the produce is taken from the grower's field. Field grading will be monitored and reconfirmed by the receiving inspector at the storage plant. The initial point of accounting is the grower's field side. He will be issued a receipt at that time and point for his harvest.

Field Side Pickup

Each district will have two one-ton flatbed trucks with drivers who will gather the produce from the side of farmers' fields and load it into an activated refrigerated van standing by at a central point on a main road in the district. The vans will have refrigeration and air circulation capacity to begin drawing heat out of the produce. Although the vans will not be as rapid as facilities at the plant, the pre-cooling process will begin under controlled humidity, soon after the produce leaves the grower's field.

Small farmers with limited means of transportation and unsuitable containers frequently damage their fruit in getting it to a central collection point. Field side pickup will alleviate this common problem, as well as reducing the period produce is exposed to ambient temperatures and permitting the grower to concentrate on his harvest.

Nursery Stock

It has been reported that three million trees are now growing in Baluchistan nurseries which can plant 15,000 hectares, and that these trees will not be budded with the most desirable budwood. It is of utmost urgency that quality budwood of the best adapted varieties be made available immediately to nurserymen. Otherwise, new plantings that will produce for twenty years may be committed to inferior production.

The current Nobel Prize for genetics was awarded to an elderly lady who pointed out thirty years ago that genetic stability is not what it is generally thought to be. Without continuous improvement, outstanding varieties gradually lose their advantage.

Budwood is a perishable commodity, requiring precise conditions in storage and transport. The marketing organization can be of service to the fruit industry in this area.

Coordinated Scheduling of Transport

Field men will coordinate harvest hours, time of pickup, and route within the producing district with farmers through the progressive farmer leaders of each group to minimize the time involved in getting products under controlled temperatures and humidity. The district manager working through the marketing organization truck dispatcher will coordinate refrigerated freight service between his district and the cold storage plant for efficient use of packing and processing facilities at the central point. The truck dispatcher will keep the production director and the marketing director informed of the volume and quality of incoming produce. Zone managers will be free to supervise any part of the operation needing attention. Having the authority, time, and knowledge

to be an effective troubleshooter, the zone manager can act as the principal trainer and diplomat for the production department in his region. Use of two-way mobile radios will greatly facilitate the widespread work of the production department.

Availability of suitable equipment is only one, but essential, part of preserving quality. The nature of perishables, not the managers, determines the time available for conservative handling. The managers must indoctrinate and supervise a large number of farmers who are not accustomed to rapid transit, and who may only slowly become aware of the effect that timely coordination has on their incomes. Much managerial effort, extension education, and motivation will be required to meet export quality standards in the dry warm weather conditions of Pakistan.

Cultural Practices

Improvement in cultural practices is fundamental to success in export competition and, like coordination, will absorb a major portion of managerial attention in the marketing organization. Processing the produce, once procedures and quality have been stabilized, is routine under the control of trained employees, but no amount of effort nor skilled handling by these people can improve the inherent quality that farmers deliver from their fields. Cultural practices determine the nature and volume of produce the marketing organization is to sell. While all parts of the perishable chain are essential to its functioning, the degree of success depends to a large extent on the assistance made available to a large number of farmers and how readily it is accepted. Table 19 shows how a marketing services business may be organized.

Organization

The following chart lists the classes of skills needed, responsibilities and monthly compensation, including a cost of living adjustment for each class. Selection, compensation, promotion and tenure of all employees should be based solely on their individual integrity, ability and performance. Compensation and employee benefits should be adequate to attract and motivate high caliber job oriented employees in all classifications.

A perishable marketing operation as a service business has a trust relationship with a large number of farmers. The operation must be efficient, but not extravagant. Payroll costs for the relatively small number of employees in the marketing services organization is ultimately borne by a large group of client farmers. Efficiency in marketing perishables requires a timely meeting of schedules set by the nature of the products equal the performance of foreign competitors. Any superficial labor disturbance during the harvest season penalizes client farmers, thus jeopardizing the viability of the marketing chain needed to earn foreign exchange for the nation.

The amount of compensation listed is intended to include both a base salary and a provision for compliance with the Employees Cost of Living Act of 1976. Compulsory contributions paid by the business for employees are shown in Table 19 - Organization as payroll taxes, which include Social Security (Provincial Employees Social Security Ordinance 1965): 6 percent; Old Age

Benefit (Employees Old Age Benefit Act 1976): 5 percent; and Compulsory Group Insurance (Standing Order 10-B): 5 percent. Since no employees are projected to earn less than 1,000 Rs. per month, all employees are covered by group insurance rather than workers' compensation (Workmen's Compensation Act 1923). Listed as employee benefits are a bonus of one month's salary (Standing Order 10-C): 8.5 percent of the combined base salary and cost of living allowance; and a provision for paid leave (West Pakistan Shops & Establishments Ordinance 1969): vacation pay of 14 days, casual leave of 10 days, sick leave of 8 days, and festival (holiday) leave of 10 days, which conjunctively are estimated to add 11.5 percent to payroll costs. Employees renumeration is further increased by the Workman's Participation Fund (Companies Profit Act 1968) distributing 5 percent of net profit, Table 24 - Operating Statement. As a percentage of total payroll workmans participation to 1.3 percent in Phase I, 6.2 percent in Phase II, 6.3 percent in Phase III, 6.2 percent in Phase IV, and 7 percent in Phase V. District managers and field men can receive 0.6 percent and 1.7 percent respectively as incentive bonuses, paid from the net returns to grower pools. These provisions are thought to fulfill all requirements of the West Pakistan Industrial & Commercial Employment Ordinance 1968 (Standing Orders).

Levels of Responsibility and Compensation

Title	Class	Monthly Compensation (Rupees)	Responsibility
Board of Directors	-	-	Appointed as representatives of the stockholders with full authority to set policy for the corporation.
Director	1	60,000	Implements policy over one of the principal functions of the business.
Manager	2	20,000	Complete line authority over a division of the business--a department or an area.
Superintendent	3	10,000	Line authority over a function within a department.
Foreman	4	5,000	Supervises a group of people. "Field men" are in this classification.
Artisan, Master	5	4,000	Skilled, experienced, and bears technical responsibility for a job performed, such as a master mechanic or an electrician.
Artisan	5	3,000	Skilled, experienced, and bears general responsibility for operation of a machine, such as a line truck driver.

Levels of Responsibility and Compensation, continued.

Title	Class	Monthly Compensation (Rupees)	Responsibility
Skilled Employee	6	2,500	Clerical, maintenance, repair, crew leaders who do not require close supervision or special training.
Experienced Employee	7	2,150	Same as a skilled employee, but less so, should be receptive to learning for advancement.
Laborer	8	1,100	Performs a job under the supervision of a crew leader.

Assistants with line or staff authority may be attached to any level of responsibility. Staff includes nonsupervising professional and clerical personnel. Assistant positions are compensated at the next lower level than the job they assist. These key positions should be filled with employees having training potential and should have back up capability for the job they assist.

For supporting information, see the letter from Mr. Hussain Nasser in the Appendix, listing compensation currently paid by the construction industry in Karachi. Other sources of supporting information have also been considered and agree with his pay schedule.

Table 19. ORGANIZATION, page 1

Job	Class	Employees by Phase					Pay /Mo. (000 Rs)	Need Months	(000) Rupees Annual Wage	P/R Taxes	Employee Benefit	Total Payroll	Personnel Cost Rupees per Crate				
		I	II	III	IV	V							I	II	III	IV	V
MARKETING DIRECTOR	1	1	1	1	1	1	60	12	720.0	115.2	144.0	979.2	0.80	0.54	0.49	0.44	0.39
Secretary	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Assistant	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Sales Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Secretary	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Assistant	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Tropical Fruit Sales	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Deciduous Fruit Sales	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Vegetable Sales	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Clerk	6	1	1	2	2	2	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.04	0.04	0.03
Arabian Gulf Representative	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Secretary	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Traffic Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Documentation	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Communications	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Ocean Freight	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Secretary	7	1	1	1	1	1	2.15	12	25.8	4.1	5.2	35.1	0.03	0.02	0.02	0.02	0.01
Packing Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Secretary	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Assistant	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Box Manufacturing Superintendent	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Machine Operator	5	3	3	3	3	3	4	9	108.0	17.3	21.6	146.9	0.12	0.08	0.07	0.07	0.06
Laborers	8	4	5	6	7	7	1.1	9	39.6	6.3	7.9	53.8	0.04	0.04	0.04	0.04	0.04
Sorting Line Superintendent	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Assistants (Foremen)	4	2	2	4	4	4	5	9	90.0	14.4	18.0	122.4	0.10	0.07	0.12	0.11	0.10
Laborers	8	18	18	36	36	36	1.1	9	178.2	28.5	35.6	242.3	0.20	0.13	0.24	0.22	0.19
Inspector	4	1	1	2	2	2	5	10	50.0	8.0	10.0	68.0	0.06	0.04	0.07	0.06	0.05
Packaging Material Superintendent	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Clerk	6	1	1	2	2	2	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.04	0.04	0.03
Storage Manager	2	1	1	2	2	2	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.33	0.30	0.26
Receiving Superintendent	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Inspector, records and dispatching	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Unload and Palletizing Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Laborers	8	4	4	8	8	8	1.1	9	39.6	6.3	7.9	53.8	0.04	0.03	0.05	0.05	0.04
Pre-cooling Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Fumigation Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06

Table 19. ORGANIZATION, page 2

Job	Class	Employees by Phase I	II	III	IV	V	Pay /Mo. (000 Rs)	Need Months	(000) Rupees Annual Wage	P/R Taxes	Employee Benefit	Total Payroll	Personnel Cost Rupees per Crate I	II	III	IV	V
MARKETING DIRECTOR—(cont.)																	
Storage Department continued:																	
Plant Superintendent	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Forklift Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Forklift Operators	6	3	3	6	6	6	2.5	9	67.5	10.8	13.5	91.8	0.08	0.05	0.09	0.08	0.07
Maintenance Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Mechanic	6	1	1	2	2	2	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.04	0.04	0.03
Carpenter	7	1	1	2	2	2	2.15	12	25.8	4.1	5.2	35.1	0.03	0.02	0.04	0.03	0.03
Electrician	5	1	1	2	2	2	3	12	36.0	5.8	7.2	49.0	0.04	0.03	0.05	0.04	0.04
Control Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Janitors	8	3	3	6	6	6	1.1	12	39.6	6.3	7.9	53.8	0.04	0.03	0.05	0.05	0.04
Watchmen	8	3	3	6	6	6	1.1	12	39.6	6.3	7.9	53.8	0.04	0.03	0.05	0.05	0.04
Shipping Superintendent	3	1	1	2	2	2	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.16	0.15	0.13
Secretary	7	1	1	2	2	2	2.15	12	25.8	4.1	5.2	35.1	0.03	0.02	0.04	0.03	0.03
Domestic Markets Foreman	4	1	1	2	2	2	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.08	0.07	0.06
Laborers	8	2	2	2	2	2	1.1	12	26.4	4.2	5.3	35.9	0.03	0.02	0.02	0.02	0.01
Ocean Dock Foreman	4	1	1	1	1	1	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.04	0.04	0.03
Stevedores	8	4	4	4	4	4	1.5	9	54.0	8.6	10.8	73.4	0.06	0.04	0.04	0.03	0.03
ADMINISTRATION DIRECTOR	1	1	1	1	1	1	60	12	720.0	115.2	144.0	979.2	0.80	0.54	0.49	0.44	0.39
Comptroller	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Treasurer	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Receipts	6	1	2	3	3	3	2.5	12	30.0	4.8	6.0	40.8	0.03	0.05	0.06	0.06	0.05
Disbursements	6	1	2	3	3	3	2.5	12	30.0	4.8	6.0	40.8	0.03	0.05	0.06	0.06	0.05
Computer	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Secretary	5	1	2	3	3	3	3	12	36.0	5.8	7.2	49.0	0.04	0.05	0.07	0.07	0.06
General Ledger	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Field and Cost Accounting	3	1	2	3	3	3	10	12	120.0	19.2	24.0	163.2	0.13	0.18	0.25	0.22	0.19
Payroll	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Purchasing Agent	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Requisitions and Deliveries	6	1	2	3	3	3	2.5	12	30.0	4.8	6.0	40.8	0.03	0.05	0.06	0.06	0.05
Personnel Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Records	7	1	1	2	3	3	2.15	12	25.8	4.1	5.2	35.1	0.03	0.02	0.04	0.05	0.04
Public Relations Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Secretary	6	1	2	2	2	2	2.5	12	30.0	4.8	6.0	40.8	0.03	0.05	0.04	0.04	0.03

Table 19. ORGANIZATION, page 3

Job	Class	Employees by Phase					Pay /Mo. (000 Rs)	Need Months	(000) Rupees Annual Wage	P/R Taxes	Employee Benefit	Total Payroll	Personnel Cost Rupees per Crate				
		I	II	III	IV	V							I	II	III	IV	V
PRODUCTION DIRECTOR	1	1	1	1	1	1	60	12	720.0	115.2	144.0	979.2	0.80	0.54	0.49	0.44	0.39
Transportation Manager	2	1	1	1	1	1	20	12	240.0	38.4	48.0	326.4	0.27	0.18	0.16	0.15	0.13
Assistant	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Records	7	1	2	2	2	2	2.15	12	25.8	4.1	5.2	35.1	0.03	0.04	0.04	0.03	0.03
Dispatcher	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Truck Foreman	4	1	1	1	1	1	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.04	0.04	0.03
Truck Drivers	5	9	9	9	9	9	3	10	270.0	43.2	54.0	367.2	0.30	0.20	0.18	0.17	0.15
Shop Superintendent	3	1	1	1	1	1	10	12	120.0	19.2	24.0	163.2	0.13	0.09	0.08	0.07	0.06
Mechanical Foreman	4	1	1	1	1	1	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.04	0.04	0.03
Mechanics, Master	5	2	2	2	3	3	4	12	96.0	15.4	19.2	130.6	0.11	0.07	0.07	0.09	0.08
Mechanic Helpers	6	2	2	2	3	3	2.5	9	45.0	7.2	9.0	61.2	0.05	0.03	0.03	0.04	0.04
Welders	6	2	2	2	3	3	2.5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.04	0.06	0.05
Service Foreman	4	1	1	1	1	1	5	12	60.0	9.6	12.0	81.6	0.07	0.05	0.04	0.04	0.03
Service Men/ Fuel Issue	5	2	2	2	2	2	3	12	72.0	11.5	14.4	97.9	0.08	0.05	0.05	0.04	0.04
Parts Warehouse Clerk	6	1	1	1	1	1	2.5	12	30.0	4.8	6.0	40.8	0.03	0.02	0.02	0.02	0.02
Zone Managers	2	1	2	3	4	5	20	12	240.0	38.4	48.0	326.4	0.27	0.36	0.49	0.59	0.65
Salary and Expenses recovered from Growers:																	
District Superintendents	3	4	7	9	11	14	10	12	480.0	76.8	96.0	652.8	0.54	0.64	0.74	0.81	0.91
Drivers	7	4	7	9	11	14	2.15	12	103.2	16.5	20.6	140.3	0.12	0.14	0.16	0.18	0.19
Equipment Operators	6	4	7	9	11	14	2.5	12	120.0	19.2	24.0	163.2	0.13	0.16	0.18	0.20	0.23
Watchmen/ loaders	8	8	14	18	22	28	1.1	12	105.6	16.9	21.1	143.6	0.12	0.14	0.16	0.18	0.20
Field Men (foreman level)	4	14	20	25	29	34	5	12	840.0	134.4	168.0	1142.4	0.94	0.91	1.03	1.07	1.10
Technical Services Manager, also Assistant Production Director	2	1	2	2	2	2	20	12	240.0	38.4	48.0	326.4	0.27	0.36	0.33	0.30	0.26
Fieldmen (staff authority)	4	2	4	5	6	7	5	12	120.0	19.2	24.0	163.2	0.13	0.18	0.21	0.22	0.23

TOTALS - PHASE I	EMPLOYEES: 169	PAYROLL 16,408.6	PER UNIT: 13.40 Rupees per Crate*
- PHASE II	202	18,963.2	10.54
- PHASE III	284	24,088.1	11.98
- PHASE IV	305	25,557.8	11.59
- PHASE V	327	27,198.6	10.74

* 1 Rupee = 7.547 cents U. S. Currency.

Payroll Taxes and Employee Benefits

Additional payroll expenses have been projected into costs of the operation, based on a review of Pakistan labor regulations by Surridge & Beecheno, Karachi attorneys.

Table 19. Organization (Employee Benefits):			
Bonus Month		8.5%	
Paid Leave		11.5%	
Vacation	14 days		
Casual Leave	10 days		
Sick Leave	8 days		
Festival Leave	10 days		
Total	42 days		
Table 24. Operating Statement			
Workmen's Participation Fund		5.0%	
Table 19. Organization (Payroll Taxes):			
Provincial Social Security		6.0%	
Old Age Benefit		5.0%	
Compulsory Group Insurance		5.0%	
Employee Benefits and Payroll Taxes			41.0%

The above apply to all employees. Additional incentives for farmer extension service personnel are paid from grower pooling accounts, Table 18. Grower Returns. Perquisites and expense reimbursements are projected, where applicable, in the operating statement. The amounts listed in the above compensation schedule include both base salary and a provision for compliance with the Employees Cost of Living (Relief) Act of 1973.

Management

A 60,000 rupees per month allowance for perquisites paid by the marketing organization has been added in the Projected Operating Statement, Table 24, for each of the two expatriate directors to bring their total compensation to a level that will attract the caliber of management critically required by the operation.

Foreign operations frequently limit potential attainment by hiring someone who is available and willing to relocate, rather than selecting and engaging the caliber required. Qualified directors for foreign projects are hard to find and expensive when identified, but whatever it takes to get the necessary qualifications is the most economic part of the payroll. Necessary qualifications include the characteristics of being dynamic, job and challenge oriented, willing to complete an assigned role in the project, ability and desire to train a replacement, and a personal plan to return home after development is well under way.

Waiver of the age 55 legal restriction on employment will give the prototype marketing organization a much better prospect for success by permitting engagement of people with the widest experience in the top positions. Quali-

fied candidates for the two top expatriate positions are quite likely to be over age 55. Talented individuals under 55 years of age are not prone to risk, interrupting established high paying careers to work in a development project. Probable candidates will be energetic, successful executives who are semi-retired. Being success and job oriented proven, managers are willing to take on a new development to satisfy their characteristic need of challenge. Age is not necessarily a constructive criterion for selection; experience, accomplishment and dynamism are the important attributes.

The plan calls for two high caliber expatriates, employed for a term, to direct marketing and production, working with an equally capable Pakistani director of administration in implementing the business. Provision is made in the projected operating statement for periodic expatriate specialists to assist the management in setting up development programs. All other employees will be Pakistan residents selected and trained by the managing directors.

Whether or not an Arabian Gulf representative is Pakistani depends on the availability of qualified candidates in the beginning. After the project is well established, this position will be an excellent training job for higher responsibility and should be rotated occasionally with promising Pakistani management employees.

Field Services Corps

Employees of the marketing organization listed under the line in the middle of the third page of Table 19 are all entirely involved in providing cultural services to farmers. In Chapter III, the pooling arrangement for equitably distributing returns to farmers was described. Employees directly involved in farmer assistance can be motivated by sharing in net returns to grower pools as compensation for advances made by farmers in the respective areas. The incentive, in addition to their regular salaries, will add only a small cost per package. All of their effort accrues to the profit and benefit of the large number of farmers with whom they deal. Their salaries, the cost of equipment that they use, and their incentive premiums are deducted from farmer returns in product accounting pools.

Table 20 shows field service charges per package ranging from 2.3 rupees in Phase 1, the most concentrated zone, to 3.3 rupees per package in Phase V, the most dispersed production region. In Phase I, the cost of 37 employees would be charged back to grower pools, but many of the other 132 employees of the marketing organization will be involved in grower assistance a major part of the time. The extension program will be formulated and supervised by the technical services manager, who is also assistant production director.

Table 20. FIELD SERVICE CHARGES

Job	Class	No. Field Units by Phase					Cost Mo.	Need Period	(000) Rs 1st Yr. Cost	Field Service Cost Rupees per Crate				
		I	II	III	IV	V				I	II	III	IV	V
Payroll Costs (Brought forward from Table 19.)									2,731.9	2.25	2.53	2.81	2.96	3.12
Pickup Trucks		4	7	9	11	14	3.3	12	158.4	0.13	0.15	0.18	0.20	0.22
	Truck Operation	8	14	18	22	28	3.3	6	158.4	0.13	0.15	0.18	0.20	0.22
	Equipment Operation	4	7	9	11	14	2.65	6	63.6	0.05	0.06	0.07	0.08	0.09
	Subsistance	8	14	18	22	28	.3	9	21.6	0.02	0.02	0.02	0.03	0.03
Pickup Truck (foreman level)		14	20	25	29	34	2.1	12	352.8	0.29	0.28	0.31	0.34	0.35
Passenger Car		1	2	2	2	2	2.65	12	31.8	0.03	0.04	0.03	0.03	0.03
Pickup Trucks		2	4	5	6	7	2.35	12	56.4	0.05	0.06	0.07	0.08	0.08
Totals		41	68	86	103	127			2,772.6	2.342	2.629	2.944	3.120	3.301

FIELD SUPERVISION RESPONSIBILITIES

Zone	Ave. Farm Size	Hectares Product	Average Yield	Farm: Tons Product	Districts	Field Men	Progressive Farmers	Associated Farmers	Tonnage
ZONE 1	8	2.7	8.3	22.4	4	14	140	1,260	28,224
ZONE 2	7	5.0	10.5	52.5	3	6	36	252	13,230
ZONE 3	5	2.0	9.2	18.4	2	5	50	450	8,280
ZONE 4	7	2.5	10.2	25.5	2	4	24	192	4,896
ZONE 5	7	5.0	10.5	52.5	3	5	25	125	6,563
TOTALS					14	34	275	2,279	*61,193

* Reserve supervision capacity over the tonnage actually shipped to insure against occasional acceleration during harvest due to abnormally warm temperatures.

The lower portion of Table 20 shows the total number of employees directly involved in extension assistance, the estimated number of farmers they will be dealing with in each phase, and the size of farm and yield from which the projections were derived. The projected volume of Phase 1 comes from 1,260 farmers increasing in each phase to 2,279 individual growers at the completion of Phase V. Motivating, training, supervising and coordinating such numbers is a monumental task, complicated by being dispersed in fourteen producing districts with limited communications.

The Pakistan resource that can make the project workable is the class of area leaders commonly referred to as progressive farmers. These men are energetic, willing to adopt new practices, and radiate their enthusiasm for farming and for the accomplishments that Pakistan agriculture can make if it has assistance. The basic supply unit can be a coalition of six to ten neighboring farmers, organized by a progressive farmer acting as their chairman. Being literate, intelligent and energetic, the progressive farmer can act as coordinator of the group with the field man from the marketing organization. The coalition leader can be a channel for disseminating information, and serve as an unofficial objective arbitrator of issues that will arise, advising the field man of grower thinking. For these services, the chairman would be compensated by receiving an additional five percent for deliveries to the grower pool.

The fundamental characteristics of both field men and progressive farmers are integrity and receptiveness. Without being overbearing, standards of conduct should be infused in indocrination, clarifying the reality that benefits of association with the marketing group derives from these personal traits.

With this consolidation of production, the number of people to be dealt with is still large, 140 progressive farmers in the first phase, increasing to 275 by the completion of Phase V. This can be made manageable by building into the marketing organization 14 field men and 3 technical services specialists, together with the support of the other 132 employees in Phase I. Adjustments according to experience can be made as each phase is undertaken.

Farmer Assistance

Field services and assistance will include the following areas for which there is a demonstrated need now. Other services can be added as justification arises after primary wants are met.

1. A **written agreement** in Urdu and English concluded between each farmer and the marketing organization before the growing season begins. The contract should be expressed in simple straight forward language, without boilerplate phrases, but conforming to Pakistan law, that understandably describes the responsibilities of each interest, limited to individual capability and volition. The contract should not in any way be a forced agreement that would cause either party to have reservations.

   Even though some have stated that contracts at this level are not common in Pakistan, a written agreement as commonly used elsewhere has proven to be constructive in similar situations in developing countries. Reaching these agreements will be time

consuming and should not be hurried. Mutual acceptance is the object. The farmer must understand the agreement, and the field man must be acquainted with each farmer through the auspices of the progressive leader. In each successive phase, negotiating client-farmer contracts will become less involved.

2. The marketing organization can serve as an **intermediate channel for client grower loans** to complete their harvest. The field man will be responsible for recommending and obtaining repayment of grower loans. Applications can be reviewed by the district manager as conforming to the pattern of a district and its crops, then approved by the zone manager. Funds should be disbursed by the comptroller's office. The amount of credit extended can be limited to 80 percent of a conservative estimate of a grower's pool return, after deductions, including previous advances. The collateral arrangement can be written into the client-grower contract of Item 1 at the time the season crop plan and budget are agreed upon. The farmer would know what he can borrow. Prior arrangement makes timely disbursement possible.

   The marketing organization may charge the client-farmer 3 percent per annum above the cost of its money source for financial services when used.

3. **Supplementary equipment** will be needed by growers to improve their cultural practices. Each district will be equipped with a small tractor and implements, all of which can be transported on a specially designed tandem axle trailer that also carries fuel and maintenance supplies. The trailer can be pulled by one of the trucks assigned to each district since the use of this equipment will occur midseason when trucks are not used for harvest. The equipment would be operated by the truck driver or an employee of the marketing organization. Farmers will be charged for the cost of operation, including labor and a return on investment. A farmer would be billed only for time that the equipment is working on his land. Transport time and expense can be computed into the hourly rate for operation.

   The cost of supplemental equipment services has not been projected into grower returns on the premise that additional mechanization will increase grower income beyond that shown in Table 18, varying with individual farmers.

   The tractor attachments can include a terracing blade, an insecticide applicator and a dry fertilizer broadcasting implement. It is practically impossible to uniformly apply insecticides by hand on a timely basis. Uniform application of dry chemical fertilizers is likewise difficult and time consuming if done manually. Narrow smooth passage-ways for the tractor can be made with the terracing blade through fields that are now unsuitable for mechanization because of the random indentations of irrigation bunds. The narrow avenues can also improve irrigation efficiency and facilitate harvest, while increasing yield in both orchards, and in solid planted annual crops because of the skip row effect on yields.

4. **Laboratory analyses.** Technical services personnel can monitor soils, water and fertility by representative laboratory analyses within a district. Individual farmers will not pay directly for samples taken from their farms, but outside laboratory work will be an expense of the respective grower pools for each crop within a district.

5. **Consistent and continuous extension service.** The marketing organization must maintain a strong extension effort to farmers in information, improved varieties, results of test plots, current season information on the effectiveness of material used in insect control, etc. This program should be consistent with the current needs of farmers and leave impractical advances for a later time. The extension work should include one-on-one farmer-to-farmer discussions with the progressive leaders, group meetings of the coalition to discuss current conditions, research work illustrated by multimedia presentations, and practical economic data useful to farmers in planning. Meetings can be open to the public including neighboring non-client farmers, independent produce handlers, or others interested in agriculture, if their attendance does not disrupt the purpose of the meeting. Partially social picnics or barbeques may be added occasionally, or any other means to develop camaraderie for agricultural advance. Planning an effective extension program is a major project in itself.

Field men, by continuous follow-through supervision, will advise farmers on the use of insecticides, fertilizers, planting stock, growth regulators, pruning, thinning, sizing practices, field layout, irrigation, drainage, cropping plans, new crops, diversification, methods to control alternate bearing, etc. The goal is to develop an understanding of quality specifications and the cultural practices necessary to attain them.

Chapter V. Estimated Returns

Prospectus

Increased Yields and Quality

The program described above will make available to progressive farmers and their associates the means, information, training, and follow-through supervision to make appreciable advances in the production of fruits and vegetables where increase in acreage and yields recently have been more or less stagnant. The prototype marketing program will create another key ingredient that, when added to the extension services above, will result in agricultural advancement. That essential is motivation by increased grower returns projected in Table 18 for each crop and district.

Farmer returns are calculated on the basis of current export prices in Kuwait after the Pakistan Agricultural Cess and charges for marketing services are deducted. Domestic prices in some cases return more income to farmers than exporting their product. In the past, it has been necessary to control food prices without adequate grower returns, a marketing channel, nor sufficient supplemental agricultural services. Such policies tend to perpetuate and intensify the problem of food prices. Two goals can be attained by using the present domestic prices to spur production: plentiful domestic supplies of produce at moderate prices and a strong foundation in agricultural production for earning foreign exchange by export marketing.

Marketing Alternatives

The marketing organization, as planned, affords a full range of distribution alternatives that will lead to domestic price levelling, increased production with its attendant modification of domestic prices, and opportunity to capture foreign exchange by competing in export markets. The alternative uses of the full line of marketing services provided by the prototype organization is illustrated in Figure 3 as can be used for bananas and mangos grown in the Province of Sind in Phase I, and subsequently in Phase II for grapes and apples in northern Baluchistan.

Table 18. GROWER RETURNS, page 1
(Rupees per Package)

Grapes & Mangos, lug of 10 Kg net; Garlic, mesh bag, 20 Kg net; Onions, mesh bag, 50 Kg net; Potatoes, burlap bag, 50 Kg net; All other, wire bound crate, 20 Kg net; ---All figures extrapolated for these quantities. Agricultural Produce Cess of 0.5% deducted from Grower Returns.

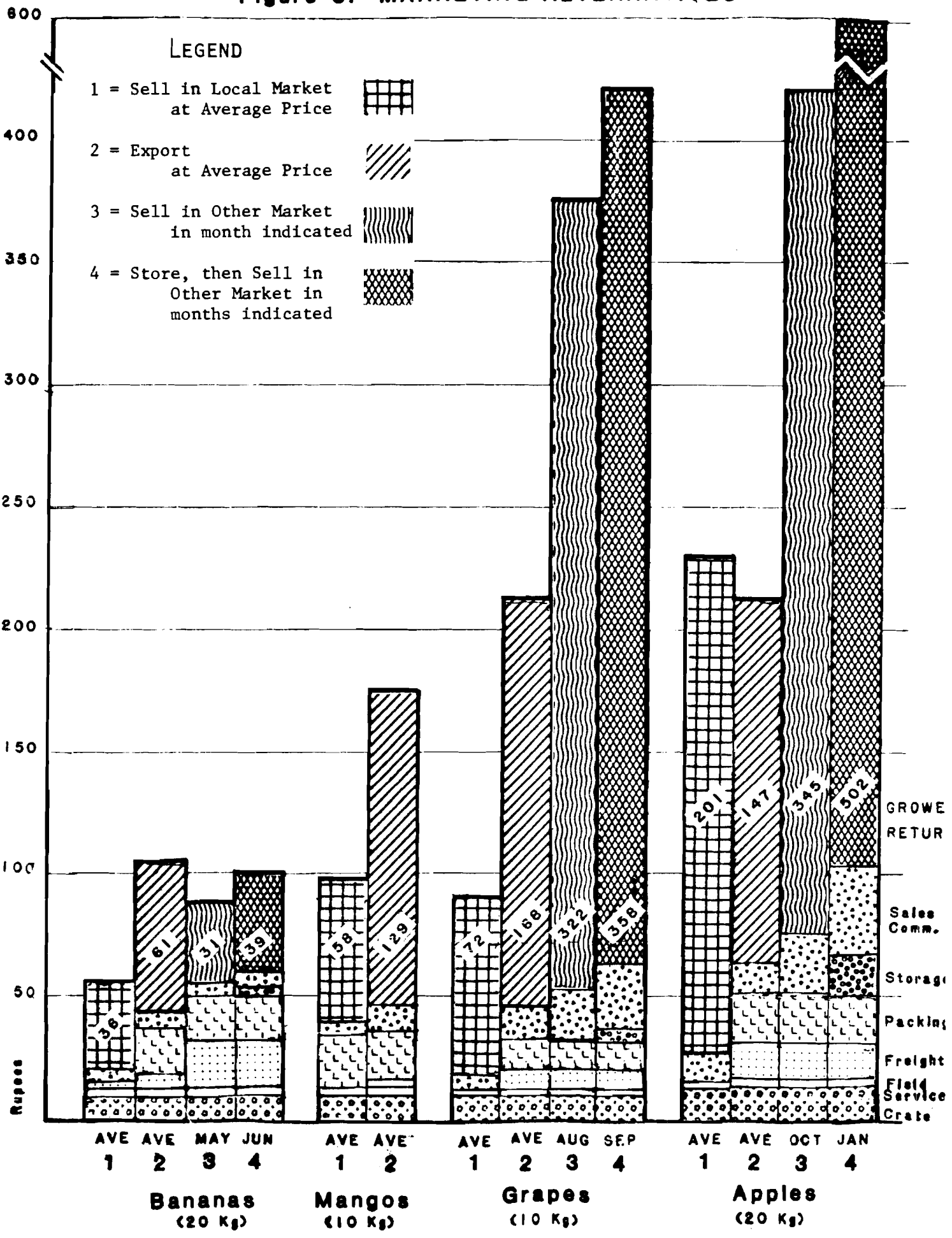
					Service Charges								Incentives			
Tons	Product	District	Pkgs. /Ton	Gulf Price	Grow. Adv.	Field Serv.	Transportation Land	Transportation Ocean	Con-tainer	Pack Chrg.	Total Chrgs.	Sales Comm	Pool Credit	Prog. Farmer	Field Man	Dist. Supt.	Farm-er
	ZONE 1																
1,050	Bananas	Baddin	46.5	105	20	2.3	4.6	2.9	10	18.5	58.3	6.3	40.1	2.0	0.7	0.2	37.2
130	Garlic	Baddin	50	295	20	2.3	4.6	1.5	6	7.2	41.6	17.7	235.5	11.8	4.0	1.4	218.3
1,500	Mangos	Baddin	90	175	20	2.3	2.3	1.5	10	20	56.1	10.5	108.1	5.4	1.8	0.6	100.3
3,600	Onions	Baddin	20	110	40	2.3	7.2	7.1	10	14.8	81.4	6.6	21.6	1.1	0.4	0.1	20
1,000	Vegtbls.	Baddin	46.5	110	35	2.3	4.6	2.9	12	18.5	75.3	6.6	27.7	1.4	0.5	0.2	25.6
3,000	Bananas	Hyderabad	46.5	105	20	2.3	3.6	2.9	10	18.5	57.3	6.3	41.1	2.1	0.7	0.2	38.1
320	Garlic	Hyderabad	50	295	20	2.3	3.6	1.5	6	11	44.4	17.7	232.7	11.6	4.0	1.4	215.7
3,200	Mangos	Hyderabad	90	175	20	2.3	1.8	1.5	10	20	55.6	10.5	108.6	5.4	1.8	0.7	100.7
1,700	Vegtbls.	Hyderabad	46.5	110	35	2.3	3.6	2.9	12	18.5	74.3	6.6	28.7	1.4	0.5	0.2	26.6
2,000	Citrus	Nawabshah	46.5	140	30	2.3	6.4	2.9	10	15	66.6	8.4	64.7	3.2	1.1	0.4	60
1,100	Onions	Nawabshah	20	110	40	2.3	10.0	7.1	10	14.8	84.2	6.6	18.8	0.9	0.3	0.1	17.5
1,950	Bananas	Tharparkar	46.5	105	20	2.3	6.0	2.9	10	18.5	59.7	6.3	38.7	1.9	0.7	0.2	35.9
1,300	Onions	Tharparkar	20	110	40	2.3	9.4	3.6	10	14.8	80.1	6.6	22.9	1.1	0.4	0.1	21.3
1,500	Bananas	Thatta	46.5	105	20	2.3	2.2	2.9	10	18.5	55.9	6.3	42.5	2.1	0.7	0.3	39.4
1,800	Vegtbls.	Thatta	46.5	110	35	2.3	2.2	2.9	12	18.5	72.9	6.6	30.1	1.5	0.5	0.2	27.9
25,150	TOTAL Tons										TOTAL GROWER RETURN: (Advances + Pool Return x Packages, 000 Rs)		104,932.9				
	ZONE 2																
200	Apples	Kalat	46.5	212.5	35	2.6	13.2	2.9	12	18.5	84.2	12.8	115.1	5.8	2.0	0.7	106.6
50	Apricots	Kalat	46.5	250	35	2.6	13.2	2.9	12	18.5	84.2	15.0	150.4	7.5	2.6	0.9	139.4
150	Grapes	Kalat	90	212.5	25	2.6	6.7	1.5	10	9.3	55.1	12.8	144.3	7.2	2.5	0.9	133.7
5,500	Onions	Kalat	20	110	40	2.6	20.6	3.6	10	14.8	91.6	6.6	11.3	0.6	0.2	0.1	10.4
50	Peaches	Kalat	46.5	250	35	2.6	13.2	2.9	10	29.8	93.5	15.0	141.0	7.1	2.4	0.8	130.7
300	Plums	Kalat	46.5	210	35	2.6	13.2	2.9	10	21.8	85.5	12.6	111.5	5.6	1.9	0.7	103.3
1,800	Potatoes	Kalat	20	116	40	2.6	20.6	7.1	10	14.8	95.1	7.0	13.4	0.7	0.2	0.1	12.4
100	Pomegr.	Khuzdar	46.5	140	30	2.6	9.6	2.9	12	21.8	78.9	8.4	52.3	2.6	0.9	0.3	48.5
200	Apples	Pishin	46.5	212.5	35	2.6	17.4	2.9	12	18.5	88.4	12.8	110.9	5.5	1.9	0.7	102.8
100	Apricots	Pishin	46.5	250	35	2.6	17.4	2.9	12	18.5	88.4	15.0	146.2	7.3	2.5	0.9	135.5
1,400	Grapes	Pishin	90	212.5	25	2.6	8.7	1.5	10	9.3	57.1	12.8	142.3	7.1	2.4	0.9	131.9
300	Plums	Pishin	46.5	210	35	2.6	17.4	2.9	10	21.8	89.7	12.6	107.3	5.4	1.8	0.6	99.5
50	Pomegr.	Pishin	46.5	140	30	2.6	17.4	2.9	12	21.8	86.7	8.4	44.5	2.2	0.8	0.3	41.2
1,100	Potatoes	Pishin	20	116	40	2.6	27.2	7.1	10	14.8	101.7	7.0	6.8	0.3	0.1	0.0	6.4
200	Apples	Quetta	46.5	212.5	35	2.6	16.5	2.9	12	18.5	87.5	12.8	111.8	5.6	1.9	0.7	103.6
100	Apricots	Quetta	46.5	250	35	2.6	16.5	2.9	12	18.5	87.5	15.0	147.1	7.4	2.5	0.9	136.3
700	Grapes	Quetta	90	212.5	25	2.6	8.3	1.5	10	9.3	56.7	12.8	142.7	7.1	2.4	0.9	132.3
50	Peaches	Quetta	46.5	250	35	2.6	16.5	2.9	10	29.8	96.8	15.0	137.7	6.9	2.3	0.8	127.7
200	Plums	Quetta	46.5	210	35	2.6	16.5	2.9	10	21.8	88.8	12.6	108.2	5.4	1.8	0.6	100.4
12,550	TOTAL Tons										TOTAL GROWER RETURN: (Advances + Pool Return x Packages, 000 Rs)		52,514.1				

Table 18. GROWER RETURNS, page 2
(Rupees per Package)

Grapes & Mangos, lug of 10 Kg net; Garlic, mesh bag, 20 Kg net; Onions, mesh bag, 50 Kg net; Potatoes, burlap bag, 50 Kg net; All other, wire bound crate, 20 Kg net; ---All figures extrapolated for these quantities. Agricultural Produce Cess of 0.5% deducted from Grower Returns.

					Service Charges								Incentives			
Tons	Product	District	Pkgs. /Ton	Gulf Price	Grow. Adv.	Field Serv.	Transportation Land	Transportation Ocean	Con- tainer	Pack Chrg.	Total Chrgs.	Sales Comm	Pool Credit	Prog. Farmer	Field Man	Dist. Supt.	Farm- er
	ZONE 3																
2,000	Citrus	Khairpur	46.5	140	30	2.8	10.2	2.9	10	15	70.9	8.4	60.3	3.0	1.0	0.4	55.9
1,000	Dates	Khairpur	46.5	175	35	2.8	10.2	0	10	13	71	10.5	93.1	4.7	1.6	0.6	86.2
1,000	Garlic	Sukkur	50	295	20	2.8	10.8	1.5	6	11	52.1	17.7	224.9	11.2	3.8	1.3	208.6
4,000	TOTAL Tons									TOTAL GROWER RETURN: (Advances + Pool Return x Packages, 000 Rs)							11,430.0
	ZONE 4																
2,000	Citrus	Multan	46.5	140	30	3.1	21.0	2.9	10	15	82	8.4	49.2	2.5	0.8	0.3	45.6
2,000	Apples	Sibbi	46.5	212.5	35	3.1	18.3	2.9	12	18.5	89.8	12.8	109.5	5.5	1.9	0.7	101.4
250	Apricots	Sibbi	46.5	250	35	3.1	18.3	2.9	12	18.5	89.8	15.0	144.8	7.2	2.5	0.9	134.2
4,250	TOTAL tons									TOTAL GROWER RETURN: (Advances + Pool Return x Packages, 000 Rs)							21,683.0
ZONE 5																	
1,000	Apples	Loralai	46.5	212.5	35	3.3	20.6	2.9	12	18.5	92.3	12.8	106.9	5.3	1.8	0.6	99.2
300	Grapes	Loralai	90	212.5	25	3.3	10.3	1.5	10	9.3	59.4	12.8	140.0	7.0	2.4	0.8	129.8
175	Plums	Loralai	46.5	210	35	3.3	20.6	2.9	10	21.8	93.6	12.6	103.3	5.2	1.8	0.6	95.7
400	Pomegr.	Loralai	46.5	140	30	3.3	20.6	2.9	12	21.8	90.6	8.4	40.5	2.0	0.7	0.2	37.6
1,500	Dates	Panjoor	46.5	175	35	3.3	13.2	0	10	13	74.5	10.5	89.6	4.5	1.5	0.5	83.1
1,000	Apples	Zhob	46.5	212.5	35	3.3	19.2	2.9	12	18.5	90.9	12.8	108.3	5.4	1.8	0.6	100.5
700	Grapes	Zhob	90	212.5	25	3.3	9.6	1.5	10	9.3	58.7	12.8	140.7	7.0	2.4	0.8	130.5
175	Plums	Zhob	46.5	210	35	3.3	19.2	2.9	10	21.8	92.2	12.6	104.7	5.2	1.8	0.6	97.1
250	Pomegr.	Zhob	46.5	140	30	3.3	19.2	2.9	12	21.8	89.2	8.4	42.0	2.1	0.7	0.3	38.9
5,500	TOTAL Tons									TOTAL GROWER RETURN: (Advances + Pool Return x Packages, 000 Rs)							38,951.7

Figure 3. MARKETING ALTERNATIVES



1. Using the field services, product collection, and refrigerated tran portation, a progressive grower can sell his products through his locaL market, represented by the first bar (checkered pattern) for each fruit. The service charges that will be deducted from his net return are represented directly under the checkered bar and are identified on the right-hand side of the graph. Services charges include the price of a container (crate,) the cost of field services, refrigerated freight into the local market, and sales commission. Mangos will benefit from pre-cooling, processing, controlled storage and panapakking at the plant when sold in local markets. Fruit packed in the field by growers for local sales can be delivered directly through a local market without cold storage plant handling. Produce cooling during transportation is sufficient to preserve quality for immediate sales. This alternative makes it possible for all growers associated with the prototype marketing organization to receive the full benefit that can be obtained from a local market without having to use a contractor.

2. The second alternative, the diagonally marked bar for each fruit, represents the increase in additional grower returns that can be realized from exporting after additional costs for packing and ocean freight are incurred. All export items and produce transferred between markets require pre-cooling and processing. In the graph, this alternative is presently profitable to Sind growers for bananas and mangos. The current price of apples and grapes in domestic markets is higher than the delivered export price.

   Growers might be quite happy with receiving the export price for their apples and grapes since they will be able to avoid the heavy deductions now made by contractors and financing middlemen. It would still not be wise to export all of their apples until the maximum incentive has been used to spur increased production and their acceptance of technical improvements. It is essential that the marketing services organization have the confidence of its growers which cannot be merited without selling their produce to their best advantage, which is domestically for some items.

3. The wave patterned bars in the graph for bananas, grapes and apples represent grower income received from selling produce in a different domestic market. In the case of bananas produced in Sind, a favorable price is frequently available through the Quetta market. Transfers between markets would entail additional freight.

4. The diamond patterned bars in the graph represent grower returns that would result from storing their produce and transporting it to another domestic market at more advantageous timing for price. Additional service charges for storage and transportation are more than offset by price differentials. There are several instances that can be found in the publication, "Fruit, Vegetable, and Condiments of Pakistan," February 1983, where storage for 30 days can return additional grower income over sale at harvest.

   The domestic market transfer and storage alternatives are not available for mangos, because they are produced in both provinces and sell at about the same price.

Figure 3 also illustrates the paradox that is now occurring in Pakistan marketing. High prices for apples and grapes in Baluchistan that appear spectacular in the graph are not generally beneficial. A few may prosper, but only in a limited way. Farmer income, moderate prices to consumers, and the nation's foreign exchange earning capacity from these products are negligible. Lack of a marketing system in northern Baluchistan has discouraged improvement in cultural practices, and stunted the fruit industry in general. The bar chart for northern Baluchistan products represents only a temporary situation if marketing outlets are less restricted.

Built into the problem is its solution. The sizable return that a grower can earn by using integrated marketing services initially in domestic markets will soon spur production activity, resulting in moderate prices, increased volume, quality, and income to the region that is deserved by virtue of its natural advantages in the production of deciduous fruit. At that time a bar chart for northern Baluchistan products will appear similar to those of Sind for bananas and mangos. The justification of a modern marketing system is that it will modify and equalize prices when fully functioning --to the benefit of all concerned, starting as the whole industry does with the farmer.

While grower returns derived through existing incomplete marketing channels, domestic and export, appear to be less from bananas and mangos, these moderately priced products earn sizable foreign exchange, 19 million rupees from bananas, and 25 million rupees from mangos, and at the same time provide Sind farmers with incomes generally considered to be much better than the plight of northern Baluchistan fruit growers with more limited marketing opportunity.

Relationships with Arabian Gulf Merchants

With the improvements discussed above, the prototype marketing organization will be able to promote respect in Arabian Gulf markets for Pakistan products. Merchants can be given an accurate description of the produce offered as quality control develops. By close adherence to quality and sizing standards, arrivals will comply with their descriptions. Complete and timely documentation of the produce can be made, meeting the regulations of importing countries. A market presence in the Arabian Gulf can be maintained. Collectively these new attributes of perishable exports will create merchant confidence in Pakistan as a source of supply. Foreign advertising of Pakistan products, recognized to be of consistent quality and availablity, can then become effective.

Policy Measures by the Pakistan Government

The recommendations of the report on the Strategy for Food Self Sufficiency and Maximization of Agricultural Exports, March 1983, by A. Jameel Nishtar, made to the Pakistan Planning Commission are consistent with and necessary to the initiation of a modern perishable marketing system. The proposed marketing plan illustrates and discusses the efficacy of the measures recommended.

Perishable marketing is a complex interrelated process where efficiency depends on uniform functioning of all of the components of the system. Gov-

ernment regulations are the most fundamental part, for they reflect and largely determine the character of the human factor that is basic to concerted action by defining the structural limits of business conduct. Success in perishable exporting and efficiency of domestic distribution depend on domestic producers being permitted to compete within a structure that recognizes proven principles established by international competition. The recommendations made to the Planning Commission encompass these axioms.

Governments are deliberative organizations. Setting policy takes time because many viewpoints are presented and considered before a course of action is chosen. Distributing perishables under the best of conditions does not allow time for formulating regulations once harvest begins; therefore, any policy adaptations deemed appropriate must be ratified before initiating a modern marketing enterprise if they are to be effective in Phase I of perishable marketing development.

In addition to major policy measures, several approvals of subsidiary matters are integral to the functioning of the proposed plan:

1. Determination that the entire marketing operation be classed as agricultural labor, exempt from industrial labor regulations as applied to manufacturing non-perishable raw materials.

2. Agreement between regulating agencies and the marketing organization that no rules will be changed, action delayed, or reinterpreted during the growing through harvest season of the crop to which it pertains, i.e., changes should be made before, not during, agricultural seasons.

3. Clarification of the principle of perishable fruit and vegetable marketing as being "agricultural processing and preserving" extending tax holiday exemptions to the endeavor.

4. Duty free permits for packing and processing supplies not available in Pakistan, i.e., net bags, decay inhibiting wraps, etc.

5. Permits to import the necessary equipment duty free.

6. Free transfer of perishables between domestic markets, within a province and between provinces.

7. Freedom to set grade and sizing standards for the produce handled.

8. Exemption from the age 55 employment restriction.

9. Permits for using mobile radios and base stations under procedures prescribed by Pakistan. Monitoring units will be furnished to each province by the marketing organization.

10. An enabling agreement that approves a marketing plan as adopted.

Several suggestions have been made for modifying regulations. Implementing new marketing techniques is much easier when customs can be accepted without change. Communication and understanding are facilitated, but change is implicit in improvement. Ultimately the success of Pakistan's marketing system has to be measured relative to international competition. The suggestions made in this paper are not ones of preference, but are axiomatic to the functioning of a marketing system when the experience of others is considered.

The most common fault in regulating agricultural economies is "too much, too late." By the time the complex factors affecting an agricultural season are known, the effect of weather on crops in all parts of the world being the principal influence, and the collective impact of marketing and production factors on grower thinking become apparent, it is too late to correct a contemporary problem during the season in which it occurs. Regulations written at this point tend to accentuate market disorders, hence any regulation that is deemed necessary will probably be most effective when guided by long term average conditions and the knowledge that detailed regulation has generally been counterproductive.

PROSPECTUS

Prototype Business

The plan proposed envisions a marketing organization providing the infrastructure necessary to establish an integrated marketing chain of interrelated services from the grower's field through wholesale markets, domestic or foreign. The marketing organization will select, train, organize and pay personnel to operate the sales, administrative, storage, packing, transportation, product collection, and farmer assistance functions that are now lacking in the production and distribution of perishable foods. Assistance to progressive farmers will include training, supervision, input financing, and supplemental equipment to make it possible for them to grow increased yields of quality fruits and vegetables to be handled by the marketing organization. The prototype marketing organization will be a service business making available the means for farmers to grow and market their produce in an orderly fashion.

Magnitude and Growth

The business must provide all of the specialized infrastructure necessary to marketing perishables with the exception of refrigerated ocean shipping. The supplies of produce the business will handle must be collected from a large number of widely dispersed small farmers who need assistance in improving their production. Balance between the efficiency of volume and the complexity of securing product has been considered in the planned increments of development.

In the first year of operation, Phase I, the business is projected to sell 25,150 tons of produce from 1,260 farms located within an average radius of 190 kilometers from its Karachi plant, grossing 166.5 million rupees ($12.6 million) at export prices in Kuwait. Projected employees: 169.

At completion of its planned development, Phase V, the business is projected to market 56,680 tons of perishables from 2,279 farms, some located 875 kilometers from Karachi, for gross sales of 409.4 million rupees ($30.9 million) at current export prices in Kuwait. Projected employment: 327.

Risks and Special Considerations

The intrinsic agricultural risks are minimal for a marketing services business, but social risks are relatively high in developing countries.

The dictum for generating agricultural profits is to grow quality crops near a known or anticipated demand in an area having natural advantages over competing suppliers in climate, soils, water and crop adaptation. Pakistan is well endowed in this respect. No unproven processes nor procedures are involved in the business. The horticultural technology needed is basic and widely practiced.

Social risk results from the country being in a transition period. Several basic issues critical to the efficiency of modern perishable distribution, both domestic and export, are being affirmatively discussed, but have not been resolved. Other issues, such as determination that the entire marketing business be considered agricultural labor, importing net bags for onions and garlic, and free flow of produce between markets, are yet to be considered.

Industrial labor regulations, that is, rules pertaining to manufacturing inanimate goods, are not generally applied to distributing perishables in other countries; to do so is detrimental to all, labor first, because the perishable marketing system will not work, and consequently to consumers and farmers. Efficiency in distributing perishables requires that all relationships be determined before a growing season begins. Perishables do not allow time for deliberation until a season is concluded if unnecessary losses are to be avoided. All employee renumerative benefits required by Pakistan law are included in the proposed plan. Preseason agreement on adjustments can be made in the future as conditions warrant.

Based on statements made by Pakistan leadership, and previous official statements in print, it appears that regulatory issues will be settled favorably, both for the viability of a perishable produce industry and the welfare of the nation as a whole.

Crucial attitudes, by masses of farmers, present perishable middlemen, and consumers will not be known until the business is initiated and has been in operation. The business respects public opinion by building into its plan provisions for avoiding disturbance of the present market structure and for independents now in the perishable handling business to participate in modern marketing as the system develops. Widespread benefits that modern marketing can create will gradually sway public attitude toward acceptance, but the

roles of tradition and literacy in mass thinking at the beginning are not known. A low profile until accomplishments are apparent is insurance against these risks, but does not eliminate them.

The phases of development have been designed as logical increments of growth as capability of the business is increased by experience. Each phase is predicated on the resolution of social issues consistent with proven conventional norms that allow the business to operate efficiently in domestic markets and to ultimately compete to Pakistan's advantage in export sales. The principal work of the preliminary phase is negotiating an enabling agreement that defines the framework of government regulations relative to perishable marketing. Crucial mass attitudes cannot be resolved immediately. The enabling agreement should grant the business the option of undertaking the prototype market development plan in phases, but should not be a commitment by the business to begin successive phases until, in the sole professional judgement of the business, all factors are favorable for doing so. This provision establishes fallback options for investors in considering social risk.

The business will carry insurance for fire, casualty, workers' group and public liability as projected in the operating expense. Product liability should be limited to negligence in handling by the business, excluding all other product losses caused by external mishap, such as work stoppages, supply shortages, public carrier, weather, etc. Natural risks of the business are not unusual.

Capital Investment

Details of projected capital investment in the business are shown on the following pages as Table 21. A summary of total outlay for each of the six phases of development follows:

Phase of Development	Depreciable Assets	Necessary Short Life Supplies	Total Outlay (000 Rs)	Loan from A.D.B.P.	Required from Investors
Preliminary	4,637.5	0	0	0	4,637.5
I	46,755.2	1,125.3	54,572.4	38,000.0	16,572.4
II	25,082.1	953.6	26,035.7	18,000.0 (10,000.0)	8,035.7
III	9,946.0	1,192.2	11,138.2	10,250.0 (10,000.0)	888.2
IV	2,305.4	953.6	3,259.0	0 (10,000.0)	3,259.0
V	3,299.1	953.6	4,252.7	0 (10,000.0)	4,252.7
Totals	92,025.3	5,178.3	99,258.0	26,250.0	37,645.5

* & ** Amounts shown under loans from the Agricultural Development Bank of Pakistan include amounts for both borrowing and repayment. In

Phases having these dual entries, new credit is drawn at the beginning of a phase of development. Repayment is made as a phase is completed. For simplification, each phase of operation development is projected to be completed in one year. For reasons discussed previously, initiating a new phase of development may not always begin the following year.

Table 21. **CAPITAL EXPENDITURES, THROUGH PHASE I**
(000 Rupees)

No.	Description	Cost per Unit	Total	Life	Annual Depreciation
PRELIMINARY PHASE					
1	Organizational Expenses	4,637.5	4,637.5	5	927.5
PHASE I:					
14	Refrigerated trailer vans,	770.0	10,780.0	5	2,156.0
9	Heavy duty semi trucks	1,325.0	11,925.0	5	2,385.0
1,000	Tons cold storage	4.7	4,700.0	20	235.0
1	Shop building	795.0	795.0	10	79.5
1	Packing shed	530.0	530.0	10	53.0
3	Forklifts	198.8	596.4	5	119.3
1	Wire bound box mfrg. plant	5,300.0	5,300.0	10	530.0
1	Box nailing machine	105.0	105.0	10	10.5
1	Multipurpose packing line	1,656.2	1,656.2	10	165.6
1	Office equipment	662.5	662.5	10	66.3
1	Office furniture	198.8	198.8	10	19.9
1	Shop equipment	1,000.0	1,000.0	10	100.0
1	Two way radio system, 1 base station 8 mobile units	238.5	238.5	5	47.7
8	Passenger cars	159.0	1,272.0	5	254.4
25	Pickup trucks, 1/2 ton	106.0	2,650.0	5	530.0
8	Trucks, 1 ton flatbed	212.0	1,696.0	5	339.2
4	Tractors, each with: trailer implements	331.2	1,324.8	5	265.0
1	Unallocated Budget Reserve	1,325.0	1,325.0	5	265.0
TOTAL DEPRECIABLE ASSETS - PHASE I			46,755.2		7,621.4
1	Working capital fund	6,625.0	6,625.0	-99	-66.9
1.2	Thousand pallets	198.8	238.6	1	238.6
8	Thousand field boxes	119.2	953.6	1	953.6
TOTAL INVESTMENT - PHASE I			54,572.4		8,746.7

Table 21. **CAPITAL EXPENDITURES, PHASES II & III**
(000 Rupees)

No.	Description	Cost per Unit	Total	Life	Annual Depreciation
PHASE II:					
500	Tons cold storage capacity added to Karachi Plant	4.7	2,350.0	20	117.5
24	Refrigerated trailer vans	770.0	18,480.0	5	3,696.0
1	Box nailing machine	105.0	105.0	10	10.5
1	Two way radio system, 1 base station 4 mobile units	132.5	132.5	5	26.5
3	Passenger cars	159.0	477.0	5	95.4
12	Pickup trucks, 1/2 ton	106.0	1,272.0	5	254.4
6	Trucks, 1 ton flatbed	212.0	1,272.0	5	254.4
3	Tractors, each with: trailer implements	331.2	993.6	5	198.7
TOTAL DEPRECIABLE ASSETS - PHASE II			25,082.1		4,653.4
8	Thousand field boxes	119.2	953.6	1	953.6
TOTAL INVESTMENT - PHASE II			26,035.7		5,607.0
PHASE III:					
1,000	Tons cold storage	4.7	4,700.0	20	235.0
3	Forklifts	198.8	596.4	10	59.6
1	Box nailing machine	105.0	105.0	10	10.5
1	Multipurpose packing line	1,656.2	1,656.2	10	165.6
1	Two way radio system, 1 base station 3 mobile units	106.0	106.0	5	21.2
12	Pickup trucks, 1/2 ton	106.0	1,272.0	5	254.4
4	Trucks, 1 ton flatbed	212.0	848.0	5	169.6
2	Tractors, each with: trailer implements	331.2	662.4	5	132.5
TOTAL DEPRECIABLE ASSETS - PHASE III			9,946.0		1,048.4
1.2	Thousand pallets	198.8	238.6	1	238.6
8	Thousand field boxes	119.2	953.6	1	953.6
TOTAL INVESTMENT - PHASE III			11,138.2		2,240.6

Table 21. **CAPITAL EXPENDITURES, PHASES IV & V**
(000 Rupees)

No.	Description	Cost per Unit	Total	Life	Annual Depreciation
PHASE IV:					
2	Mobile radio units	26.5	53.0	5	10.6
7	Pickup trucks, 1/2 ton	106.0	742.0	5	148.4
4	Trucks, 1 ton flatbed	212.0	848.0	5	169.6
2	Tractors, each with: trailer implements	331.2	662.4	5	132.5
TOTAL DEPRECIABLE - PHASE IV			2,305.4		461.1
8	Thousand field boxes	119.2	953.6	1	953.6
TOTAL INVESTMENT - PHASE IV			3,259.0		1,414.7
PHASE V:					
3	Mobile radio units	26.5	79.5	5	15.9
9	Pickup trucks, 1/2 ton	106.0	954.0	5	190.8
6	Trucks, 1 ton flatbed	212.0	1,272.0	5	254.4
3	Tractors, each with: trailer implements	331.2	993.6	5	198.7
TOTAL DEPRECIABLE ASSETS - PHASE V			3,299.1		659.8
8	Thousand field boxes	119.2	953.6	1	953.6
TOTAL INVESTMENT - PHASE V			4,252.7		1,613.4
TOTAL INVESTMENT - ALL PHASES			103,895.5		
Less:	Supplies Expensed in Current Year		(5,245.2)		
	Working Capital Fund		(6,625.0)		
Depreciable Assets			92,025.3		

Financial requirements for inventories are shown in Table 22.

Table 22. INVENTORIES
(000 Rs)

Name	Factor by Phase					Base Amount	Phase I	Phase II	Phase III	Phase IV	Phase V
	I	II	III	IV	V						
Containers	1	1.624	1.833	2.018	2.214	1,562.4	1,562.4	2,537.3	2,863.9	3,152.9	3,459.2
Fuel, oil & lubricant	1	1.014	1.014	1.014	1.014	212.0	212.0	215.0	215.0	215.0	215.0
Grower advances	1	1.624	1.833	2.018	2.214	7,699.7	7,699.7	12,504.3	14,113.6	15,538.0	17,047.1
Lumber, wire & staples	1	1.624	1.833	2.018	2.214	1,042.1	1,042.1	1,692.4	1,910.2	2,103.0	2,307.2
Office supplies	1	1.584	1.848	2.084	2.458	19.9	19.9	31.5	36.8	41.5	48.9
Packing materials	1	1.624	1.833	2.018	2.214	608.2	608.2	987.7	1,114.8	1,227.3	1,346.6
Shop supplies	1	1.014	1.014	1.014	1.014	66.2	66.2	67.1	67.1	67.1	67.1
Tires & parts	1	1.014	1.014	1.014	1.014	297.6	297.6	301.8	301.8	301.8	301.8
TOTAL						11508.1	11508.1	18,337.1	20,623.2	22,646.6	24,792.9

Operating Expense and Income

Marketing Operation Income to the business is shown in Table 23 for the initial year in each phase. Accumulated totals, not shown in Table 23, include a 10 percent increase in tonnage from each zone in the second year of operation, resulting from improvements in the use of insecticides and other easily introduced practices.

A consolidated Projected Operating Statement is shown in Table 24.

Taxes, Compulsory Levies, and Depreciation

Based on a memorandum on "Taxes, Corporate Structure and Labor Legislation for Proposed Fruit Processing and Marketing Project" (see Appendix) by the Karachi law firm of Surridge & Beecheno, the following taxes, compulsory payments and depreciation deductions have been projected:

Tax	Rate	Comment:
Corporate Income	Nil	Exemption from tax is available with respect to profits and gains derived from poultry farming, fish catching, cattle or sheep breeding, poultry processing, dairy farming, fish farming and date processing by an undertaking set up before July 30,1988 anywhere in Pakistan for five years. The nature of the business is clearly within the spirit of the law. It is thought the Central Board of Revenue will approve application for exemption.
Local Taxes	Not Known	Property taxes, licenses and other provincial, municipal and local assessments are not known. A Budget Reserve account (Table 24) of 662.5 thousand rupees ($50,000) for Phase I, with lesser amounts in succeeding phases, has been projected in the operating statement to cover unanticipated contingencies.
Sales Tax	Nil	No sales tax on fresh fruits or exports.
Agricultural Cess	1/2%	A customs duty of one-half percent of the value (wholesale price) is levied upon the export of certain agricultural produce (including fruit). The Federal Government may exempt articles from this cess. Any levy will be deducted from returns to growers (Table 18).

Table 23. MARKETING OPERATION INCOME BY PHASE, page 1

Tons	District	Product	Pkgs. /Ton	Packages	Rs /Pkg.	Field Service (000 Rs)	Rs /Pkg.	Container Sales (000 Rs)	Rs /Pkg.	Packing Charges (000 Rs)	Rs /Pkg.	Export Sales (000 Rs)	Rs /Pkg.	Land Freight (000 Rs)
ZONE 1:														
1,050	Baddin	Bananas	46.5	48,825	2.3	112.3	10	488.3	18.5	903.3	105	5,126.6	4.6	224.6
130	Baddin	Garlic	50	6,500	2.3	15.0	6	39.0	7.2	46.8	295	1,917.5	4.6	29.9
1,500	Baddin	Mangos	90	135,000	2.3	310.5	10	1,350.0	20	2,700.0	175	23,625.0	2.3	310.5
3,600	Baddin	Onions	20	72,000	2.3	165.6	10	720.0	14.8	1,065.6	110	7,920.0	7.2	518.4
1,000	Baddin	Vegtbls.	46.5	46,500	2.3	107.0	12	558.0	18.5	860.3	110	5,115.0	4.6	213.9
3,000	Hyderabad	Bananas	46.5	139,500	2.3	320.9	10	1,395.0	18.5	2,580.8	105	14,647.5	3.6	502.2
320	Hyderabad	Garlic	50	16,000	2.3	36.8	6	96.0	11	176.0	295	4,720.0	3.6	57.6
3,200	Hyderabad	Mangos	90	288,000	2.3	662.4	10	2,880.0	20	5,760.0	175	50,400.0	1.8	518.4
1,700	Hyderabad	Vegtbls.	46.5	79,050	2.3	181.8	12	948.6	18.5	1,462.4	110	8,695.5	3.6	284.6
2,000	Nawabshah	Citrus	46.5	93,000	2.3	213.9	10	930.0	15	1,395.0	140	13,020.0	6.4	595.2
1,100	Nawabshah	Onions	20	22,000	2.3	50.6	10	220.0	14.8	325.6	110	2,420.0	10.0	220.0
1,950	Tharparkar	Bananas	46.5	90,675	2.3	208.6	10	906.8	18.5	1,677.5	105	9,520.9	6.0	544.1
1,300	Tharparkar	Onions	20	26,000	2.3	59.8	10	260.0	14.8	384.8	110	2,860.0	9.4	244.4
1,500	Thatta	Bananas	46.5	69,750	2.3	160.4	10	697.5	18.5	1,290.4	105	7,323.8	2.2	153.5
1,800	Thatta	Vegtbls.	46.5	83,700	2.3	192.5	12	1,004.4	18.5	1,548.5	110	9,207.0	2.2	184.1
25,150	TOTALS			1,216,500		2,798.1		12,493.6		22,177.0		166,518.8		4,601.4
ZONE 2:														
200	Kalat	Apples	46.5	9,300	2.6	24.2	12	111.6	18.5	172.1	212.5	1,976.3		
50	Kalat	Apricots	46.5	2,325	2.6	6.0	12	27.9	18.5	43.0	250	581.3		
150	Kalat	Grapes	90	13,500	2.6	35.1	10	135.0	9.3	125.6	212.5	2,868.8		
5,500	Kalat	Onions	20	110,000	2.6	286.0	10	1,100.0	14.8	1,628.0	110	12,100.0		
50	Kalat	Peaches	46.5	2,325	2.6	6.0	10	23.3	29.8	69.3	250	581.3		
300	Kalat	Plums	46.5	13,950	2.6	36.3	10	139.5	21.8	304.1	210	2,929.5		
1,800	Kalat	Potatoes	20	36,000	2.6	93.6	10	360.0	14.8	532.8	116	4,176.0		
100	Khuzdar	Pomegr.	46.5	4,650	2.6	12.1	12	55.8	21.8	101.4	140	651.0		
200	Pishin	Apples	46.5	9,300	2.6	24.2	12	111.6	18.5	172.1	212.5	1,976.3		
100	Pishin	Apricots	46.5	4,650	2.6	12.1	12	55.8	18.5	86.0	250	1,162.5		
1,400	Pishin	Grapes	90	126,000	2.6	327.6	10	1,260.0	9.3	1,171.8	212.5	26,775.0		
300	Pishin	Plums	46.5	13,950	2.6	36.3	10	139.5	21.8	304.1	210	2,929.5		
50	Pishin	Pomegr.	46.5	2,325	2.6	6.0	12	27.9	21.8	50.7	140	325.5		
1,100	Pishin	Potatoes	20	22,000	2.6	57.2	10	220.0	14.8	325.6	116	2,552.0		
200	Quetta	Apples	46.5	9,300	2.6	24.2	12	111.6	18.5	172.1	212.5	1,976.3		
100	Quetta	Apricots	46.5	4,650	2.6	12.1	12	55.8	18.5	86.0	250	1,162.5		
700	Quetta	Grapes	90	63,000	2.6	163.8	10	630.0	9.3	585.9	212.5	13,387.5		
50	Quetta	Peaches	46.5	2,325	2.6	6.0	10	23.3	29.8	69.3	250	581.3		
200	Quetta	Plums	46.5	9,300	2.6	24.2	10	93.0	21.8	202.7	210	1,953.0		
12,550	TOTALS			458,850		1,193.0*		4,681.6		6,202.6		80,645.6		

* Recovery of projected expenses only; no profit margin

Table 23. MARKETING OPERATION INCOME BY PHASE, page 2

Tons	District	Product	Pkgs. /Ton	Packages	Rs /Pkg.	Field Service (000 Rs)	Rs /Pkg.	Container Sales (000 Rs)	Rs /Pkg.	Packing Charges (000 Rs)	Rs /Pkg.	Export Sales (000 Rs)
ZONE 3:												
2,000	Khairpur	Citrus	46.5	93,000	2.8	260.4	10	930.0	15	1,395.0	140	13,020.0
1,000	Khairpur	Dates	46.5	46,500	2.8	130.2	10	465.0	13	604.5	175	8,137.5
1,000	Sukkur	Garlic	50	50,000	2.8	140.0	6	300.0	11	550.0	295	14,750.0
4,000	TOTALS			189,500		530.6*		1,695.0		2,549.5		35,907.5
ZONE 4:												
2,000	Multan	Citrus	46.5	93,000	3.1	288.3	10	930.0	15	1,395.0	140	13,020.0
2,000	Sibbi	Apples	46.5	93,000	3.1	288.3	12	1,116.0	18.5	1,720.5	212.5	19,762.5
250	Sibbi	Apricots	46.5	11,625	3.1	36.0	12	139.5	18.5	215.1	250	2,906.3
4,250	TOTALS			197,625		612.6*		2,185.5		3,330.6		35,688.8
ZONE 5:												
1,000	Loralai	Apples	46.5	46,500	3.3	153.5	12	558.0	18.5	860.3	212.5	9,881.3
300	Loralai	Grapes	90	27,000	3.3	89.1	10	270.0	9.3	251.1	212.5	5,737.5
175	Loralai	Plums	46.5	8,138	3.3	26.9	10	81.4	21.8	177.4	210	1,709.0
400	Loralai	Pomegr.	46.5	18,600	3.3	61.4	12	223.2	21.8	405.5	140	2,604.0
1,500	Panjgur	Dates	46.5	69,750	3.3	230.2	10	697.5	13	906.8	175	12,206.3
1,000	Zhob	Apples	46.5	46,500	3.3	153.5	12	558.0	18.5	860.3	212.5	9,881.3
700	Zhob	Grapes	90	63,000	3.3	207.9	10	630.0	9.3	585.9	212.5	13,387.5
175	Zhob	Plums	46.5	8,138	3.3	26.9	10	81.4	21.8	177.4	210	1,709.0
250	Zhob	Pomegr.	46.5	11,625	3.3	38.4	12	139.5	21.8	253.4	140	1,627.5
5,500	TOTALS			299,251		987.8*		3,239.0		4,478.1		58,743.4

* Recovery of projected expenses only; no profit margin

Table 24. PROJECTED OPERATING STATEMENT

Name	Growth Factor by Phase I	II	III	IV	V	Base Amount	Phase I (000 Rs)	Phase II	Phase III	Phase IV	Phase V
INCOME:											
Container sales	1	1.624	1.833	2.018	2.214	12,493.6	12,493.6	20,289.6	22,900.8	25,212.1	27,660.8
Field service cost recovery	1	1.526	1.759	1.922	2.289	2,798.1	2,798.1	4,269.9	4,921.9	5,377.9	6,404.9
Freight charges	1	1.1	1.1	1.1	1.1	4,601.4	4,601.4	5,061.5	5,061.5	5,061.5	5,061.5
Lease income, refrigerated vans	0	1	1	1	1	6,776.6	0.0	6,776.6	6,776.6	6,776.6	6,776.6
Packing charges	1	1.38	1.523	1.635	1.847	22,177.0	22,177.0	30,604.3	33,775.6	36,259.4	40,960.9
Storage charges	1	1.425	2.128	2.128	2.128	874.2	874.2	1,245.7	1,860.3	1,860.3	1,860.3
Sales commission	1	1.584	1.848	2.084	2.458	9,991.2	9,991.2	15,826.1	18,463.7	20,821.7	24,558.4
total income							52,935.5	84,073.7	93,760.4	101,369.5	113,283.4
EXPENSES:											
Advertising	0	0	0	0	1	3,312.5	0.0	0.0	0.0	0.0	3,312.5
Employees - Payroll (Table 19.)	1	1.156	1.468	1.558	1.658	16,408.6	16,408.6	18,968.3	24,087.8	25,564.6	27,205.5
- Perquisites	1	1.115	1.468	1.558	1.658	1440.0	1,440.0	1,605.6	2,113.9	2,243.5	2,387.5
- Expense accounts	1	1.115	1.468	1.558	1.658	159.0	159.0	177.3	233.4	247.7	263.6
Depreciation	1	1.544	1.667	1.721	1.798	8,548.9	8,548.9	13,202.3	14,250.7	14,711.8	15,371.6
General Repair & Maint.											
- Cold storage plant	1	1.624	1.833	2.018	2.214	371.0	371.0	602.5	680.0	748.7	821.4
- Container mfrg. plant	1	1.475	1.633	1.768	2.039	265.0	265.0	390.9	432.7	468.5	540.3
- Office, incl. radios	1	1.475	1.633	1.768	2.039	112.6	112.6	166.1	183.9	199.1	229.6
- Shop	1	1.475	1.633	1.768	2.039	66.2	66.2	97.6	108.1	117.0	135.0
Legal and Audit	1	1.584	1.848	2.028	2.396	530.0	530.0	839.5	979.4	1,074.8	1,269.9
Interest - Inventories	1	1.584	1.848	2.028	2.396	1,611.1	1,611.1	2,552.0	2,977.3	3,267.3	3,860.2
- Preliminary Phase	1	0	0	0	0	647.3	647.3	0.0	0.0	0.0	0.0
- A.D.B.P.	1	1.474	1.211	1.217	0.842	4,560.0	4,560.0	6,721.4	5,522.2	5,549.5	3,839.5
Insurance - Liability, .5% sales	1	1.584	1.848	2.084	2.458	832.6	832.6	1,318.8	1,538.6	1,735.1	2,046.5
- Fire, .5% assets	1	1.128	1.316	1.383	1.443	276.0	276.0	311.3	363.2	381.7	398.3
Periodic specialists	4	3	2	2	2	132.5	530.0	397.5	265.0	265.0	265.0
Supplies: - Storage plant	1	1.05	1.29	1.197	1.255	1,608.9	1,608.9	1,697.8	2,075.7	1,926.6	2,019.5
- Office	1	1.475	1.633	1.768	2.039	159.0	159.0	234.5	259.6	281.1	324.2
- Shop	1	1.1	1.1	1.1	1.1	185.5	185.5	204.1	204.1	204.1	204.1
Technical Assistance Agreement	1	0.8	0.6	0.4	0.2	3,312.5	3,312.5	2,650.0	1,987.5	1,325.0	662.5
Utilities:- Power	1	1.624	1.833	2.018	2.214	475.1	475.1	771.6	870.9	958.8	1,051.9
- Gas	1	1.38	1.523	1.635	1.847	15.9	15.9	21.9	24.2	26.0	29.4
- Telephone	1	1.584	1.848	2.028	2.396	63.6	63.6	100.7	117.5	129.0	152.4
- Telex	1	1.584	1.848	2.028	2.396	95.4	95.4	151.1	176.3	193.5	228.6
Vehicle operation: Freight fuel	986	1086	1086	1086	1086	3.114	3,070.4	3,381.8	3,381.8	3,381.8	3,381.8
- Frt. repair & maint.	986	1086	1086	1086	1086	0.654	644.8	710.2	710.2	710.2	710.2
- Reefer vans, fuel	986	1086	1086	1086	1086	0.064	63.1	69.5	69.5	69.5	69.5
- R V repair & maint.	986	1086	1086	1086	1086	0.1	98.6	108.6	108.6	108.6	108.6
- All Other	45	69	87	93	102	31.8	1,431.0	2,194.2	2,766.6	2,957.4	3,243.6
Budget Reserve for property tax	1	0.8	0.6	0.4	0.2	662.5	662.5	530.0	397.5	265.0	132.5
Total Expense							48,244.6	60,177.1	66,886.2	69,110.9	74,265.2
Profit, exempt from income tax for five years							4,690.9	23,896.6	26,874.2	32,258.6	39,018.2
Disposition of Profit: Workmens' Participation Fund							234.5	1,194.8	1,343.7	1,612.9	1,950.9
Loan repayment to A. D. B. P.							0	10,000.0	10,000.0	10,000.0	10,000.0
Distributed to Investors							4,456.4	12,701.8	15,530.5	20,645.7	27,067.3
Rate of Return on Investment from Dividends paid to Investors							21.0	32.4	31.0	32.6	34.9

Taxes, Compulsory Levies, and Depreciation, continued.

Employees Annual Paid Leave	11.5%	Estimated composite cost of paid leave required by the West Pakistan Shops & Establishments Ordinance 1969 (Table 19 - Organization): Vacation pay 14 days Casual leave 10 " Sick leave 8 " Festival leave 10 "
Employees Bonus	8.5%	Standing Order 10-C of West Pakistan Industrial & Commercial Employment Ordinance 1968, Table 19 - Organization.
Employees Cost of Living	-	Employees Cost of Living (Relief) Act 1973 is incorporated into the levels of compensation listed in Table 19 - Organization.
Employees Group Insurance	5 %	Estimated rate for compulsory group insurance expense shown in Table 19 - Organization. Since no workers are projected to earn less than 1,100 rupees per month, all employees are covered by group insurance rather than the Workmen's Compensation Act of 1923.
Employees Old Age Benefit	5%	Employees Old Age Benefit Act 1976, Table 19 - Organization.
Employees Social Security	6%	Provincial Employees Social Security Ordinance 1965, Table 19 - Organization.
Workers Participation	5%	Companies Profits (Workers Participation) Act 1968, Table 24 - Operating Statement.
Depreciation		Pakistan Rules for Computation of Depreciation Allowance have been followed in Table 21 - Capital Investment. Accelerated depreciation, if available, is not advisable because of the five year tax exemption.

Rate of Return to Investors

Although the demonstrated economic need for modern marketing is clear, major Pakistani investors have been reluctant to enter the complex business of collecting and selling perishables as an integrated coalition. The present market structure is made up piecemeal of relatively small operations. Attraction of substantial investors to commit funds, and involvement to a new venture dealing with the risks inherent in handling perishables, require both an appropriate rate of return on invested funds and management time, as well

as a regulatory structure that permits clarification and minimization of unnecessary exposures. These two considerations, together with the economic impact of the business on Pakistan society as a whole, are thought to be planned in mutually acceptable balance.

Expatriate investors, having the technological strength and organizational size to implement the business with minimal process risk, still have to work out mutual relationships with Pakistan groups. Full and timely implementation of advanced practices is necessary in initiating the business if overall risk is held near intrinsic minimums.

Involvement by an expatriate firm sufficient to provide the necessary technical assistance will be high, relative to aggregate cash return. Allowance in the Operating Statement has been made for a Technical Assistance Agreement, whereby compensation is paid for this assistance by the business, beginning with 3,312.5 thousand rupees in Phase I and declining 662,500 rupees in each phase thereafter.

Leveraging and other equally important participation provided by the Agricultural Development Bank of Pakistan are thought to be adequate to bring the effective rate of return on investment to a level that will make the expatriate management effort plausible. Rate of return on investment is 28.7 percent. The discounted cash flow rate of 44.4 percent will pay back investment in 2.5 years.

Four disbursements from profits of 10 million rupees each, beginning with Phase II, to repay a loan of 66.25 million rupees advanced by the Agricultural Development Bank of Pakistan, will increase investor equity, but not the effective rate of cash returned. After the fifth year of operation, the minimum corporate income tax will be 20.25 percent if all profits are earned from exporting; profits from domestic activities are taxed at 45 percent. After the fifth year, depreciation allowance will be reduced by 7,024.1 thousand rupees for assets put in service in Phase I. After five years of operation, 26.25 million rupees will remain to be paid from profits on the ADBP loan. For these reason no estimate of the value income streams beyond the fifth year of operation have been projected.

The projected rate of return has been calculated using the conservative end of statistical ranges, where applicable, or averages where statistical detail was not available. The volume of the business is projected near full capacity of the facilities. The widespread need for services of the business support this approach, but other factors may delay its attainment.

Table 25. ECONOMIC IMPACT OF A PROTOTYPE MARKETING ORGANIZATION
(000 Rupees)

	Preliminary Phase	Projected Operations				
		Phase I	Phase II	Phase III	Phase IV	Phase V
Marketing Organization Earnings:						
Minimum Time for Completion	18 Mo.	1 Yr.	1 Yr.	1 Yr.	1 Yr.	1 Yr.
Profit	<4,637.5>*	4,690.9	23,896.6	26,874.2	32,258.6	39,018.2
Disposition of Profit:						
Workmens Fund 5%		234.5	1,194.8	1,343.7	1,612.9	1,950.9
Loan repayment to A. D. B. P.		0	10,000.0	10,000.0	10,000.0	10,000.0
Distributed to Investors		4,456.4	12,701.8	15,530.5	20,645.7	27,067.3
Total Investment		21,199.9	39,235.6	50,123.8	63,382.8	77,635.5
Rate of Return		21.0	32.4	31.0	32.6	34.9
Cash Flow - Investment	<4,637.5>	<16,572.4>*	<8,035.7>	<888.2>	<3,259.0>	<4,252.7>
- Dividends		4,456.4	12,701.8	15,530.5	20,645.7	27,067.3
- Depreciation		8,548.9	13,202.3	14,250.7	14,711.8	15,371.6
Net Cash Flow	<4,637.5>	<3,567.1>	17,868.4	28,893.0	32,098.5	38,186.2
Foreign Exchange**		166,518.8	263,816.3	307,788.3	347,067.9	409,380.2
Agricultural Produce Cess		832.6	1,319.1	1,538.9	1,735.3	2,049.9
Grower Income Returned		104,932.9	167,940.3	184,621.7	207,447.7	248,567.7

* Expenses of the Preliminary Phase are carried over to Phase I as a construction loan. In the Projected Operating Statement, Table 24, the loan is capitalized as investment, then depreciated over five years. Interest on expenditures in the Preliminary Phase, at 14%, is shown as an expense in Phase I, as well as the first year of depreciation on the organizing costs.

** Foreign exchange figures are based on accumulated export sales of all produce handled. Grower returns are part of the foreign exchange totals. If domestic prices are higher than can be obtained by exporting, grower income will be larger, stimulating increased production. The amount of foreign exchange earned will be temporarily reduced, but encouragement of growers will render greater foreign exhange earnings in the long run because of fundamentally strengthening the agricultural production base.

BIBLIOGRAPHY

The bibliography included in this report resulted from data base searches of subjects on Pakistan agriculture, agricultural exports from its principal competitor (India), Mideast markets, tropical fruit packaging and processing and soyabean production in the United States. A survey of this type describes the state of agriculture in a particular country, who is doing research and where to look for advanced information not yet published. Current publications show what technical level is of immediate concern. A comparison with earlier publications indicates the amount of progress being made by that country as well as by its competitors.

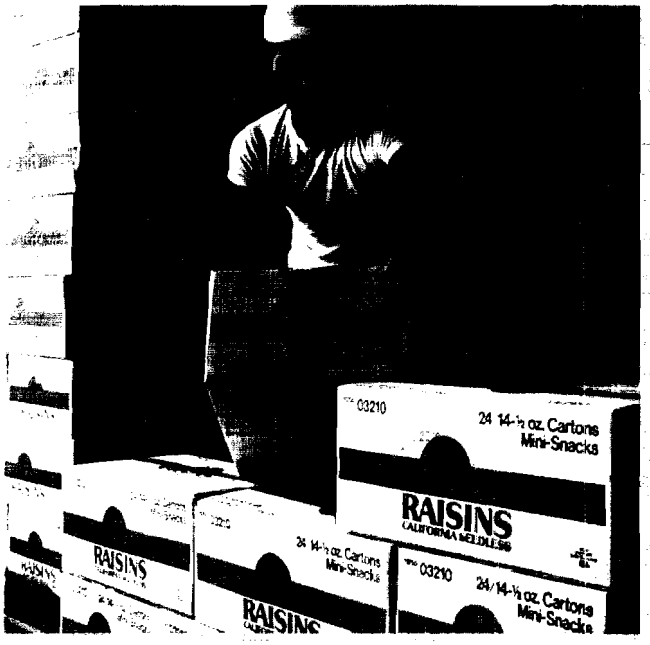
Most of the information used was derived from abstracts of cited papers, but some required obtaining the complete article which delays completion of the work. Since this survey was necessary for preparing the feasibilty study it seemed logical to also show the results of the search in a bibliography for use by other people interested in further study. In order to comprehensively cover information needed for the feasibility study the search specification also picked out agricultural topics not related to this project, such as fisheries, forestry and poultry. These are included also. A search of current literature on soybeans was made because of Pakistan's interest in oil seeds.

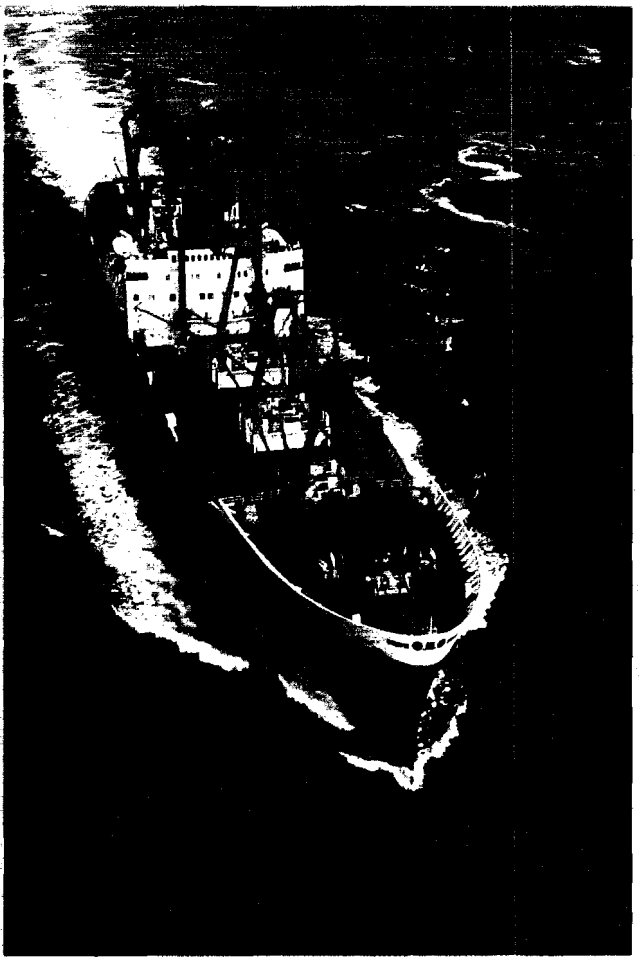
Bibliographical citations are not made in the text of the feasibility report for doing so takes an inordinate amount of time and makes the report slower to read, but sources of information, or the abstracts, can be readily supplied in response to inquiries.

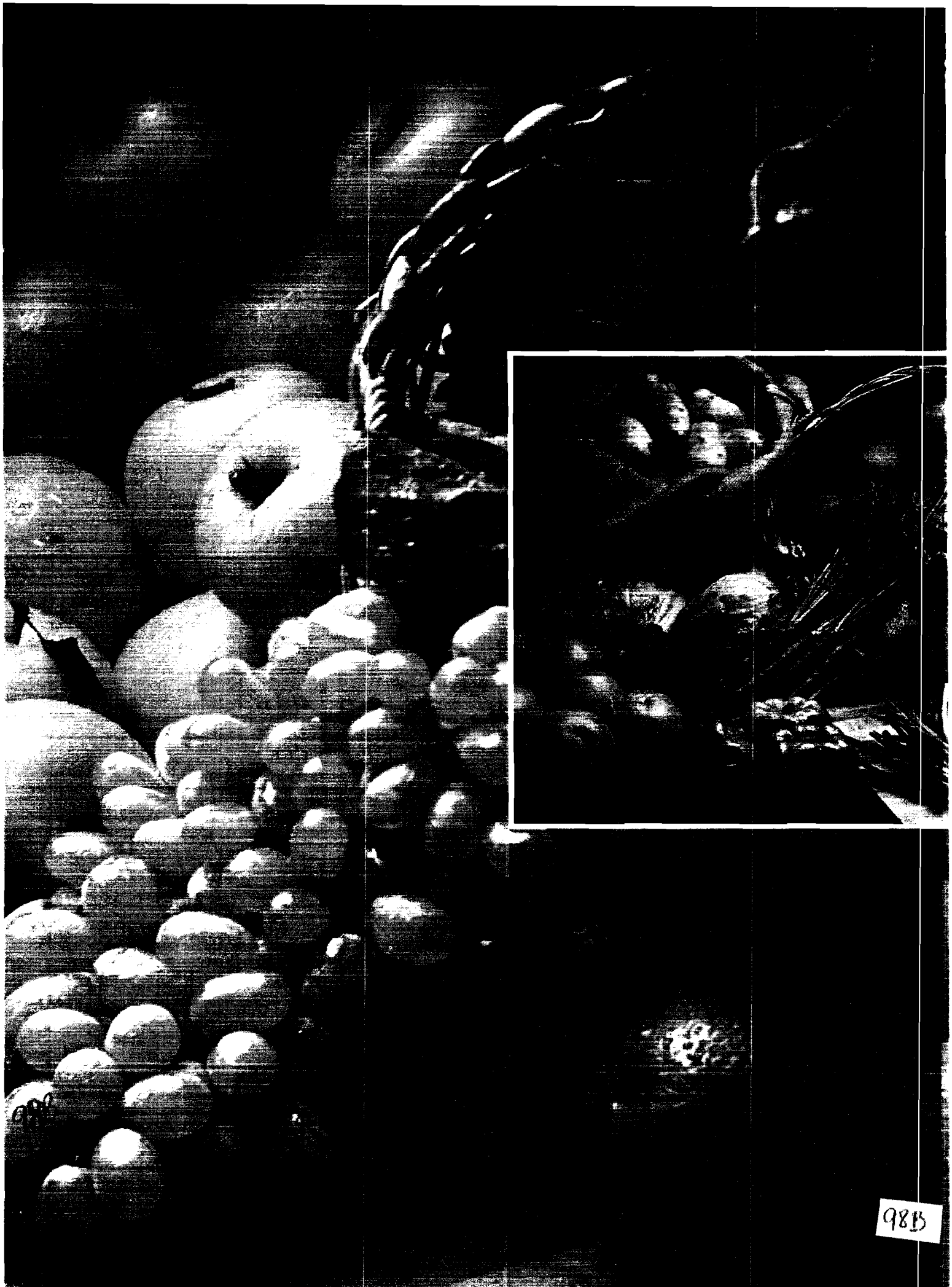
Citations are listed alphabetically by author under these topic headings:

Competition--to Pakistan in agricultural markets
Deciduous Fruit
Equipment (mechanization)
Fisheries
Forestry
General Agriculture
Land and Water Use
Management
Marketing
Packaging and Processing
Poultry
Research, Cultural Practices
Soyabeans
Tropical Fruit

WORLD-WIDE PRODUCT DISTRIBUTION







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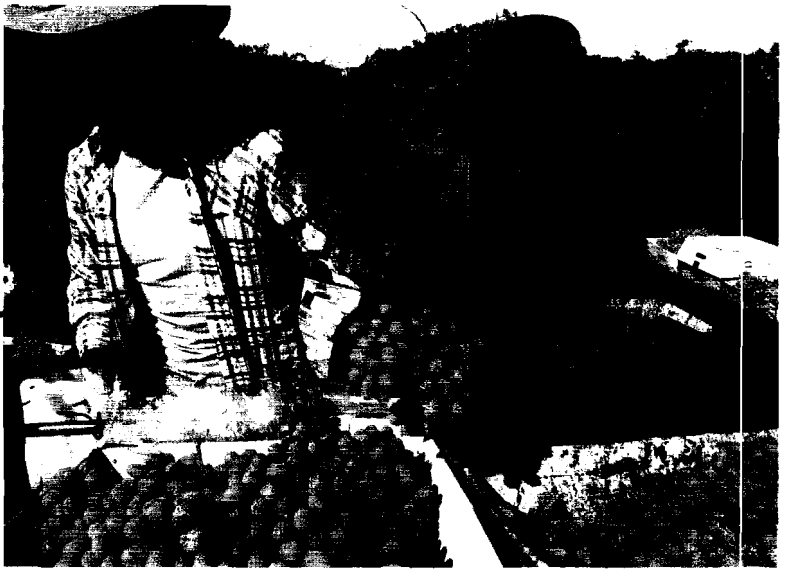
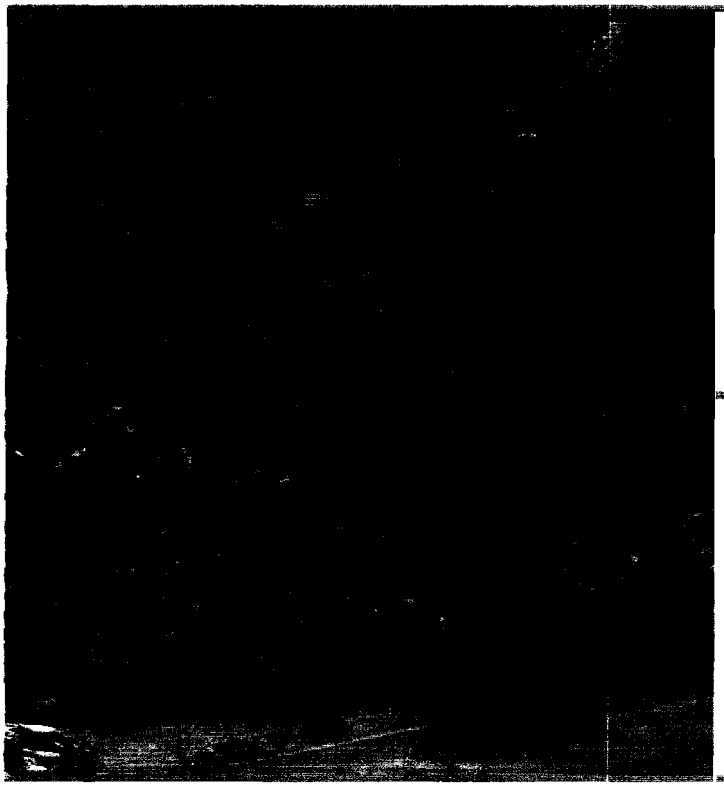
FRESH PRODUCTS





A grocer's appetizing display of fruits and vegetables depends on someone delivering products in farm-fresh condition. Tenneco West's ability to do this consistently has made us the nation's largest supplier of table grapes and a major marketer of citrus, tree fruits, strawberries and vegetables.

Farming Our lands are strategically located to stretch out harvests. Grapes, for instance, ripen early on our Coachella Valley and Arizona lands, and later in our other vineyards as they extend up the San Joaquin Valley, enabling us to market table grapes throughout the entire United States season. The diversity of our cropping program helps us to provide a greater level of year-round employment for our field employees. Steady employment reflects in a product of superior quality.

The farming group is experienced in a diversity of crops, managing sizeable acreages of almonds, grapes, tree fruit, citrus and a variety of row and field crops.

Services Our field representatives are dedicated people, on call 24 hours a day, every day. Growers value greatly the wide experience and up-to-date cultural information they provide.

Facilities Packing and cold storage facilities are located for maximum grower convenience:

Grapes: ■ Thermal ■ Litchfield Park ■ Bakersfield ■ Ducor ■ Del Rey ■ Lodi

Citrus: ■ Bakersfield ■ Thermal

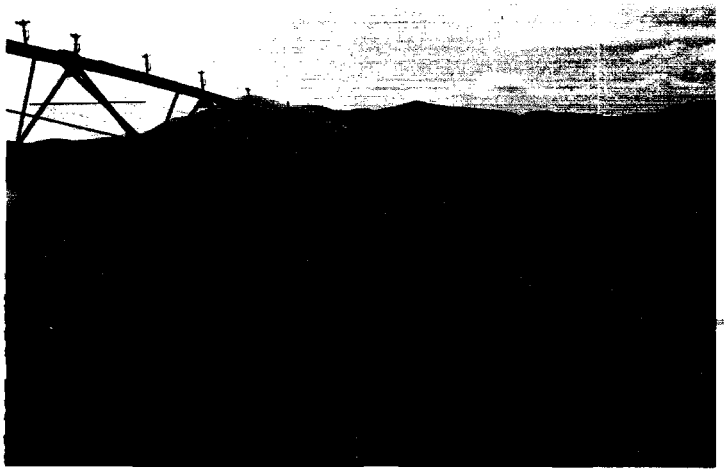
Tree Fruits: ■ Bakersfield ■ Lodi ■ Del Rey ■ Thermal

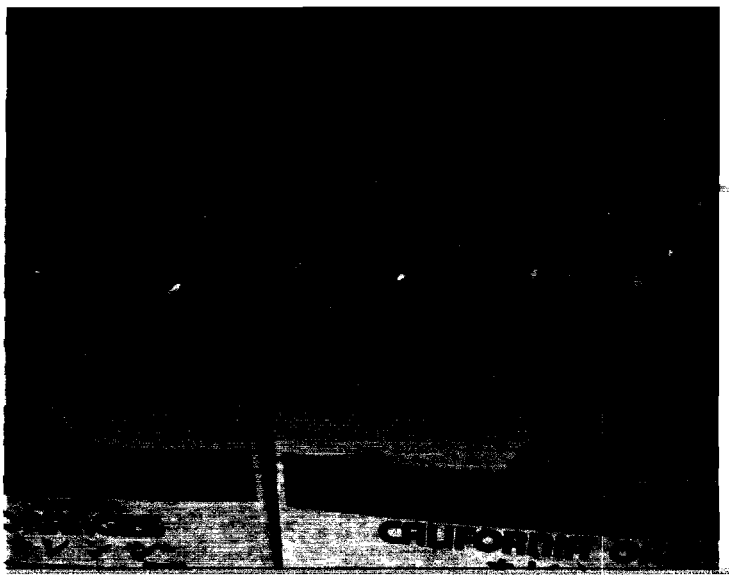
Strawberries: ■ Anaheim ■ Oxnard ■ Watsonville

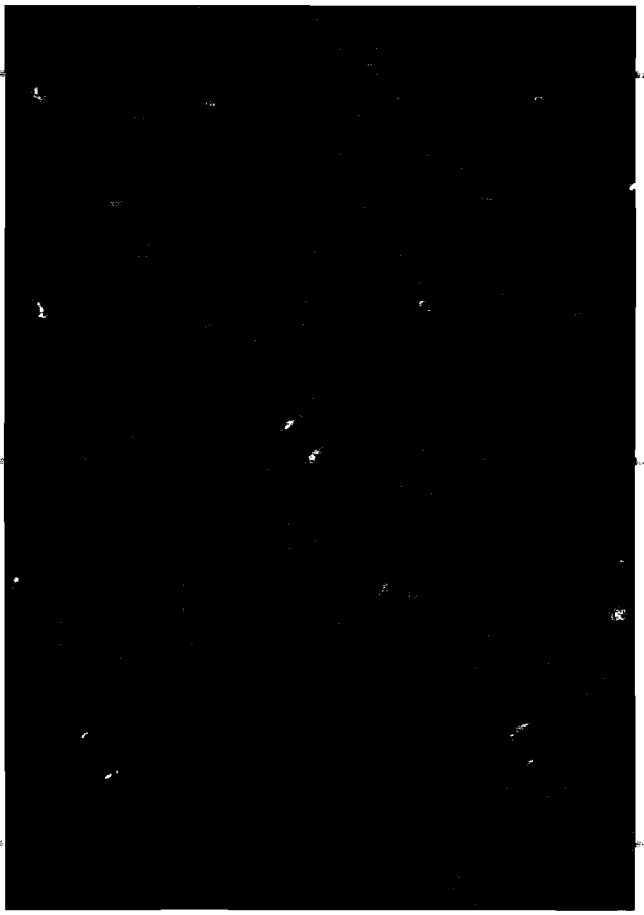
Vegetables: ■ Bakersfield ■ Thermal

Technology Our commitment to high quality and high volume involves the fullest development and utilization of modern technology. In the perishable commodities business, success comes only as the result of efficiency, so at Tenneco West there is no place for any but the most up-to-date equipment.

In our huge, eight-acre Bakersfield plant, as in all our plant locations, cooling, grading, washing, packing and cold storage operations are unsurpassed. We are the first to experiment with and develop new techniques.







Quality control is meticulous throughout all our operations.

Our concern for the land and its resources has led to innovations like the linear irrigation system, which reduces water usage up to 50 percent while improving yield.

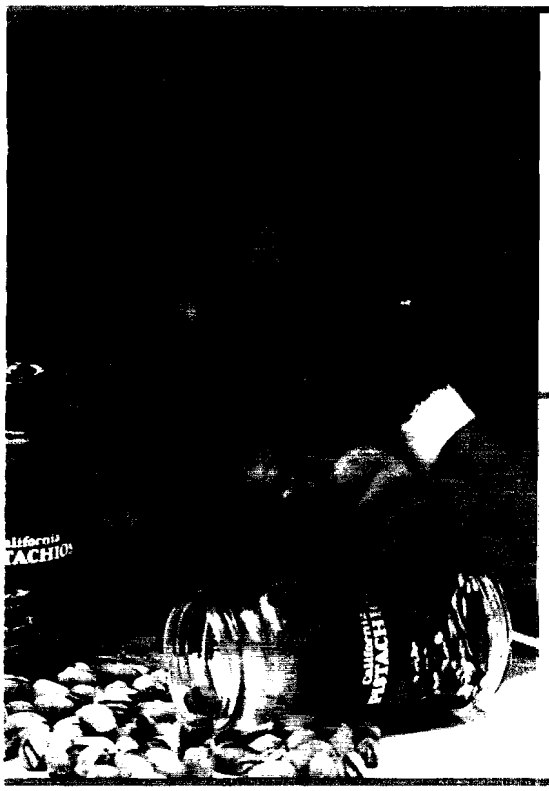
Domestic Marketing Produce buyers know Tenneco West as the supplier with more to offer. Our nationally advertised Sun Giant brand name is known and welcomed by consumers. Our many growers and our own farms provide a wide variety of products practically year-round, permitting money-saving combination purchases. Tenneco West helps grocers offer their customers quality products at a good value.

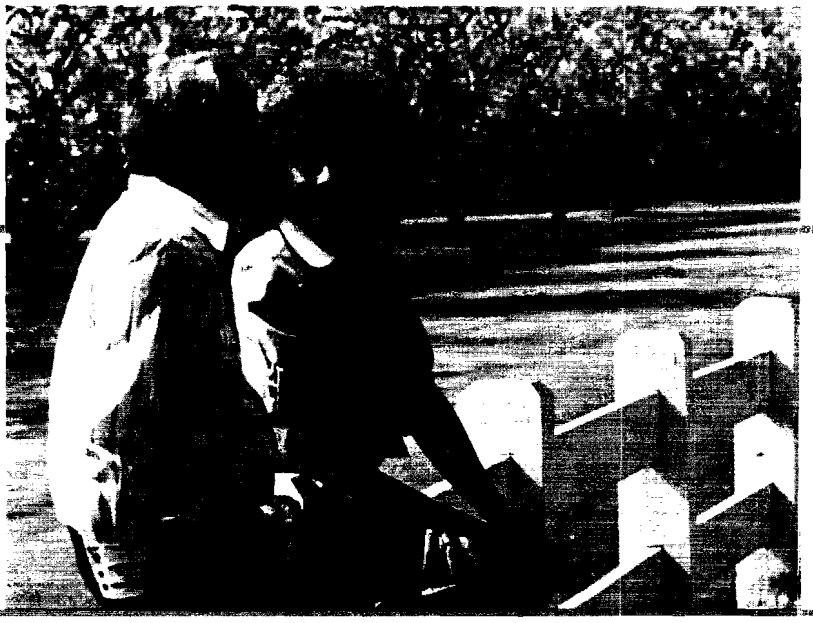
Export Marketing Tenneco West has opened up country after country to U.S. produce, winning major shares of world markets. This has provided marketing options that few, if any, of our competitors can match, expanding the markets for our growers' and company products.

Transportation Our customers count on Tenneco West to deliver...on time. Since another word for "fresh" is "perishable," we have an entire department whose business it is to know what products are wanted, where, when — and how.


RAISIN

PROCESSED FOODS





Consumers are turning more and more to natural foods. Our almonds, raisins, dates, and pistachios fit this long-term trend. Tenneco West is working to expand existing markets and create new markets for these delicious products.

Almonds are California's number one tree crop, and we are the number one independent handler.

We pioneered moister, plumper raisins and innovative packaging to protect them, building a notable Sun Giant sales success.

Dates from California's Coachella Valley are the world's finest, and we are the marketing leader.

California Colossal pistachios, bigger, meatier, easier to open than Mid-Eastern imports, present a huge potential for market growth, and we are in the forefront of this industry.

Grower Benefits These are based on the objective of paying growers more and paying them earlier for their crops.

Services Our field representatives bring a variety of assistance to growers, including up-to-date information on agricultural matters, current marketing trends, prices and expert field estimates. Our growers know that their Tenneco West field representative is only a phone call away.

Facilities Tenneco West's state-of-the-art processing facilities provide quick and efficient service to growers, while maintaining the highest quality. Plants are located in all major growing areas.

Almonds: ■ Bakersfield ■ Chico ■ Paso Robles - plus receiving stations in ■ Salida and ■ Delhi

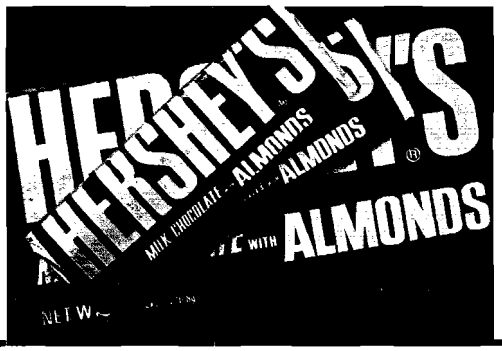
Dates: ■ Indio

Raisins: ■ Fresno area-Kerman

Pistachios: ■ Bakersfield ■ Lost Hills

Technology From procurement to packaging, all aspects of processing foods demand the utmost in technological sophistication.

Our almond plants are the most cost-effective in the industry, and equipment is updated continually. Our date-processing facilities are unsurpassed. Specially constructed dehydration tunnels insure that Sun Giant raisins are consistently juicy and flavorful.

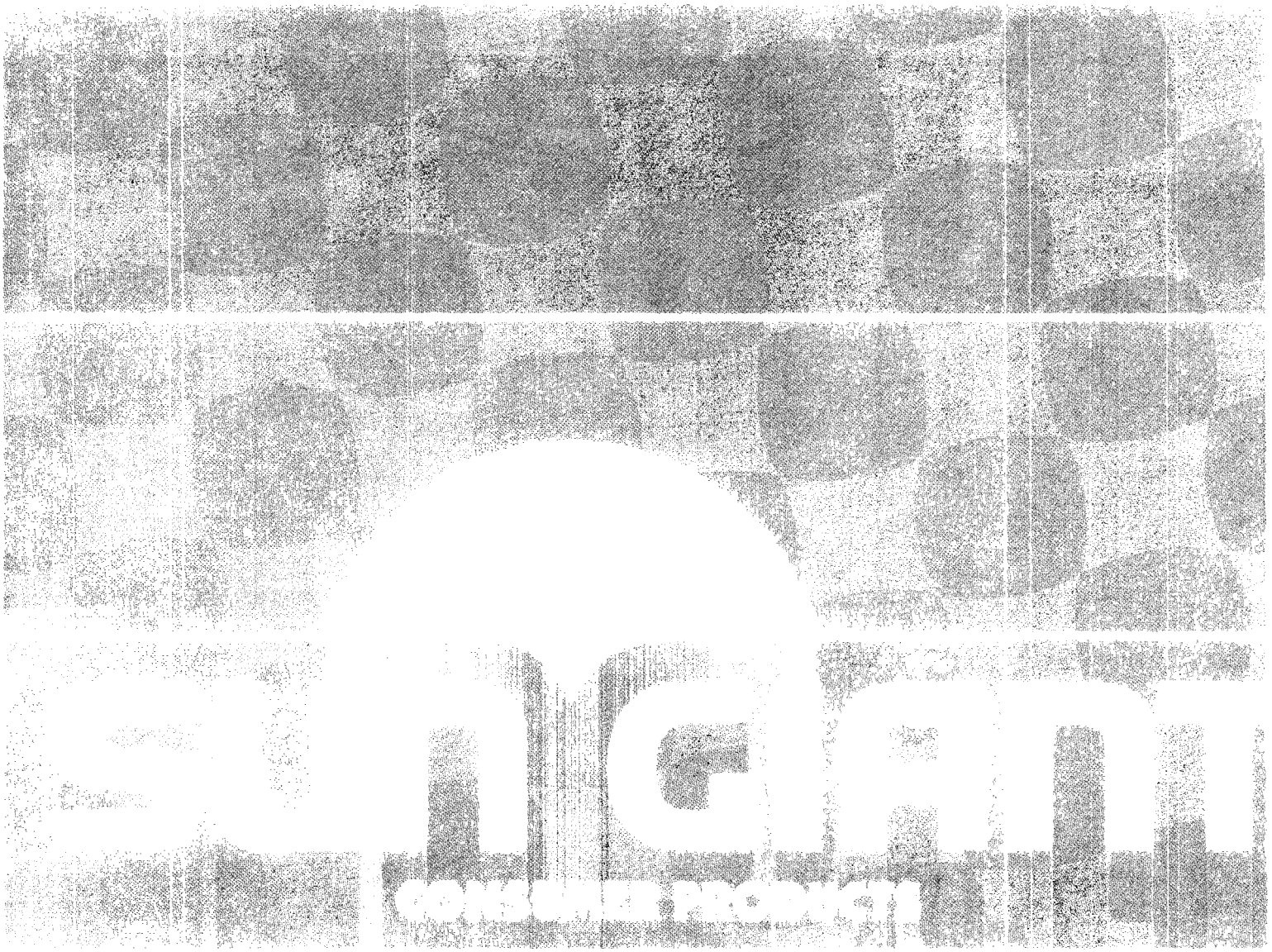


In response to our unique opportunities as processors, marketers and growers of California pistachios, we operate the world's largest and most modern pistachio facilities.

Quality control accompanies every step. Electronic scanners augment, but never replace, the expert eyes of inspectors. Food chemists with complex testing equipment insure that all products meet rigid quality standards.

Domestic Industrial Marketing Working with research and development teams at food companies and with support from our own R&D experts, our industrial marketing people have helped find many new ways to use dried fruits and nuts. Our list of customers includes many of the country's top confectioners and manufacturers of baked goods and cereals.

Export Marketing The superior quality of our California-grown nuts and dried fruits, the advantages of multiple product lines and the unmatched world-wide contacts of Tenneco have enabled our export marketing staff to open up important markets in over thirty countries.



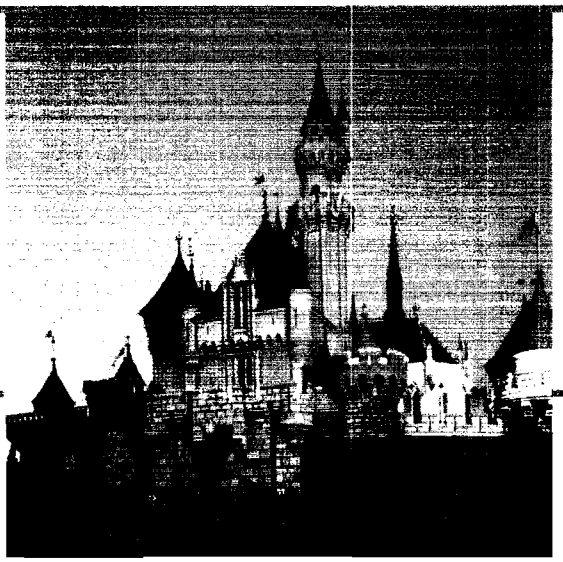
Tenneco West markets aggressively to the consumer as a national advertiser to build strong demand for our almonds, dates, raisins and pistachios. Our loyal consumers reach for Sun Giant products time after time in retail outlets across North America.

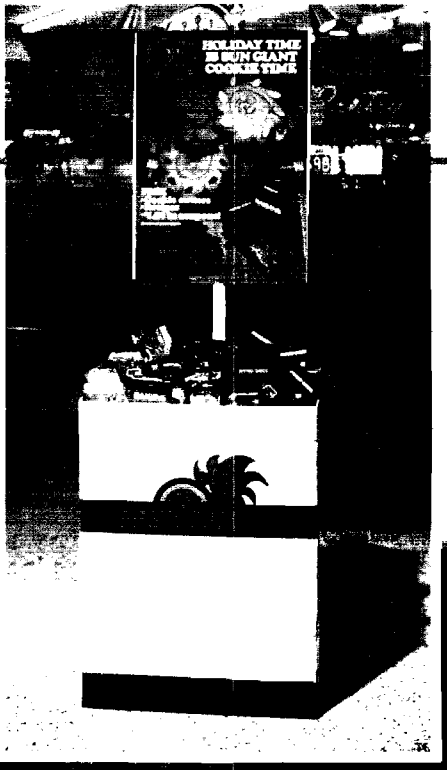
Sun Giant has unique advantages over other marketers of nuts and dried fruits. Consumers see the name not only on TV, in magazines and newspapers, but, again and again, in different sections of the store. Attractive packages present Sun Giant products in many convenient forms and flavors.

Millions see the Sun Giant name at Disneyland and Disney World, where ours are the featured nuts and dried fruits.

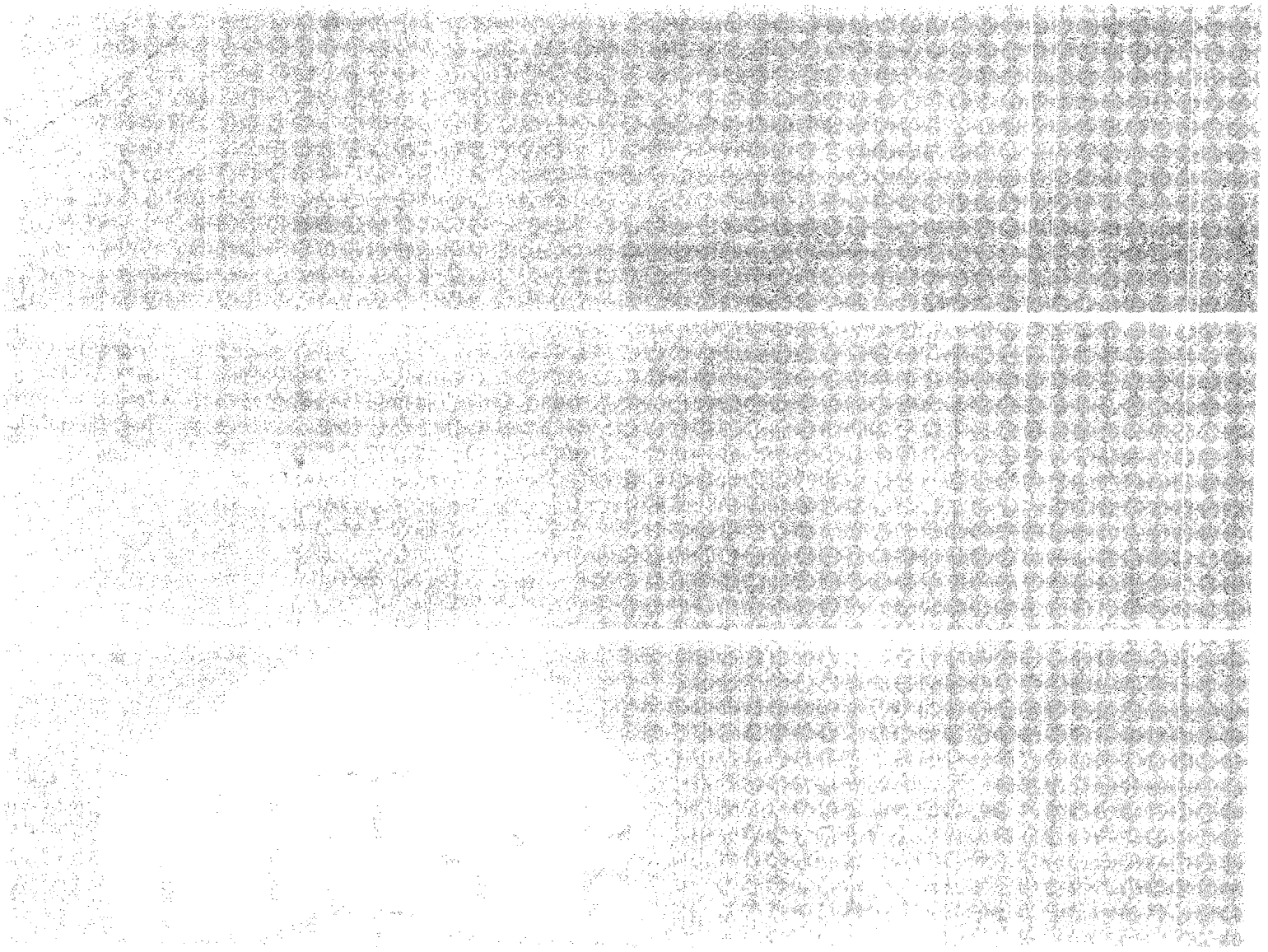
To our retailers we bring the benefits of a sophisticated, integrated marketing operation with coordinated merchandising and the economies of combined orders.

Our experienced manufacturing, marketing, sales and distribution people have created a profitable, rapidly growing business that is the leader or a strong contender in all product categories in which we compete.




HOLIDAY TIME
IS RUN GIANT
COUNTER TIME

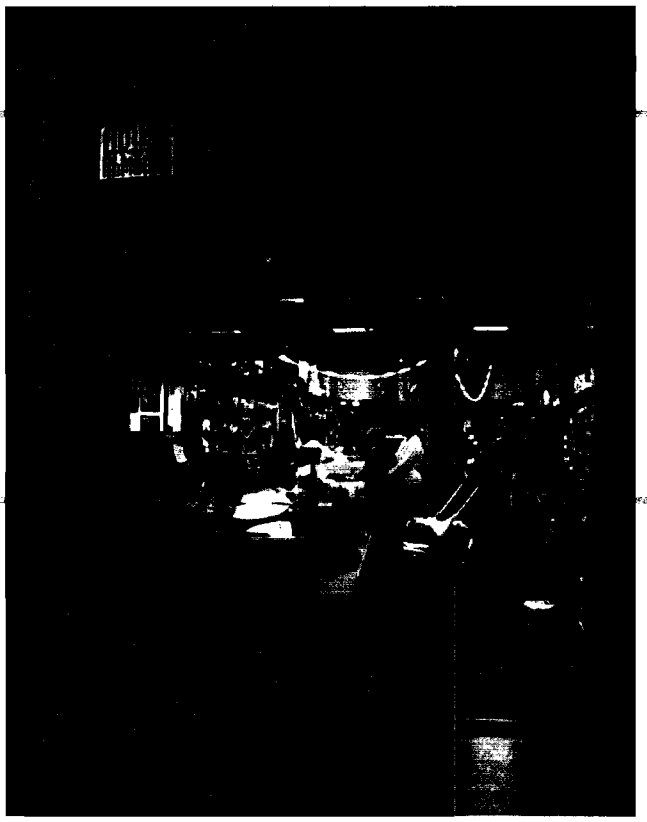

CALIFORNIA SNACKS
PITTED DATES
RAISINS
98K

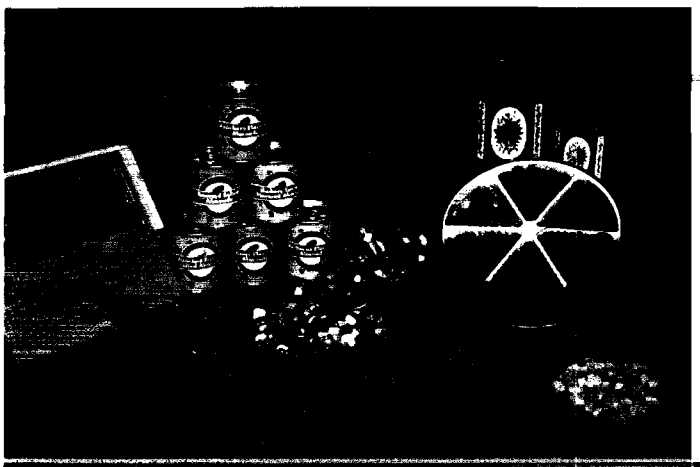


House of Almonds What began in our Paso Robles plant as a nook where visitors could purchase almonds in six flavors is today a growing and prospering chain of retail operations for our many products.

House of Almonds mail-order enterprise is already international. It has grown from a single Christmas catalog to a full-fledged, year-round enterprise. The catalog continually offers new gift products and new packaging to attract new customers.

House of Almonds specialty food and gift stores have become very successful in major shopping malls throughout the West. By bringing together high-traffic locations and tested merchandising discoveries, they represent an entirely new kind of store. Bulk products in barrels, with free samples offered by friendly sales people, stimulate sales and lead shoppers to attractive displays of gift items. Scheduled for major expansion in the decade of the 1980's, the new House of Almonds stores demonstrate Tenneco West's determination and ability to open up huge new markets.





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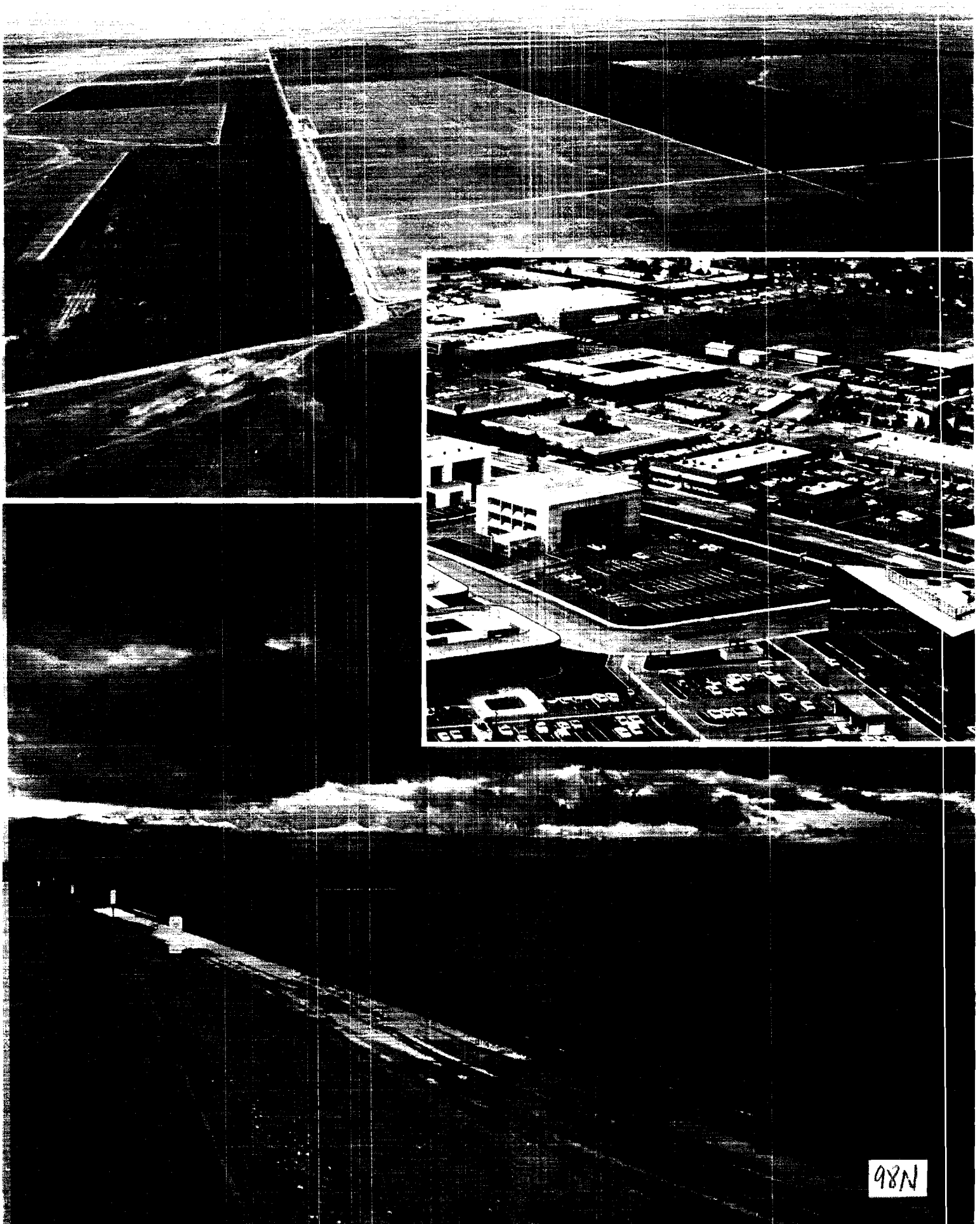

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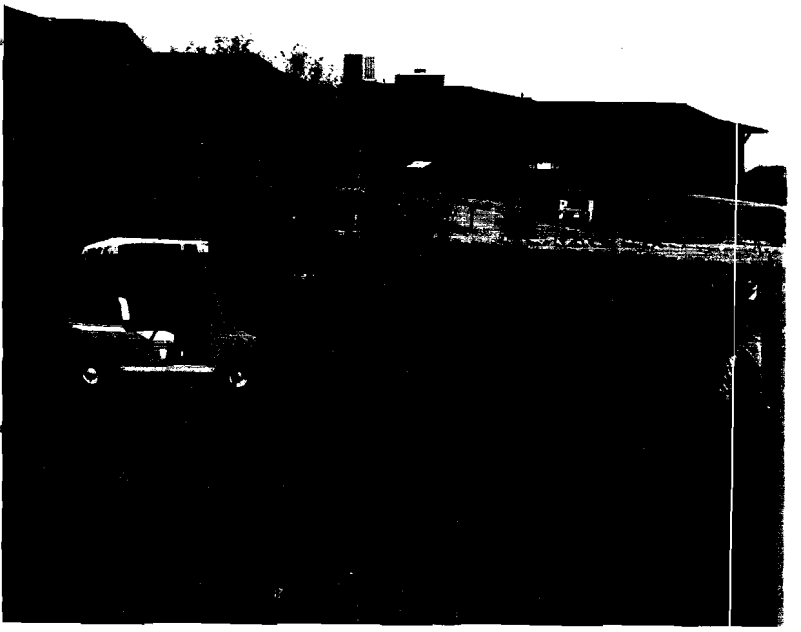
LAND MANAGEMENT

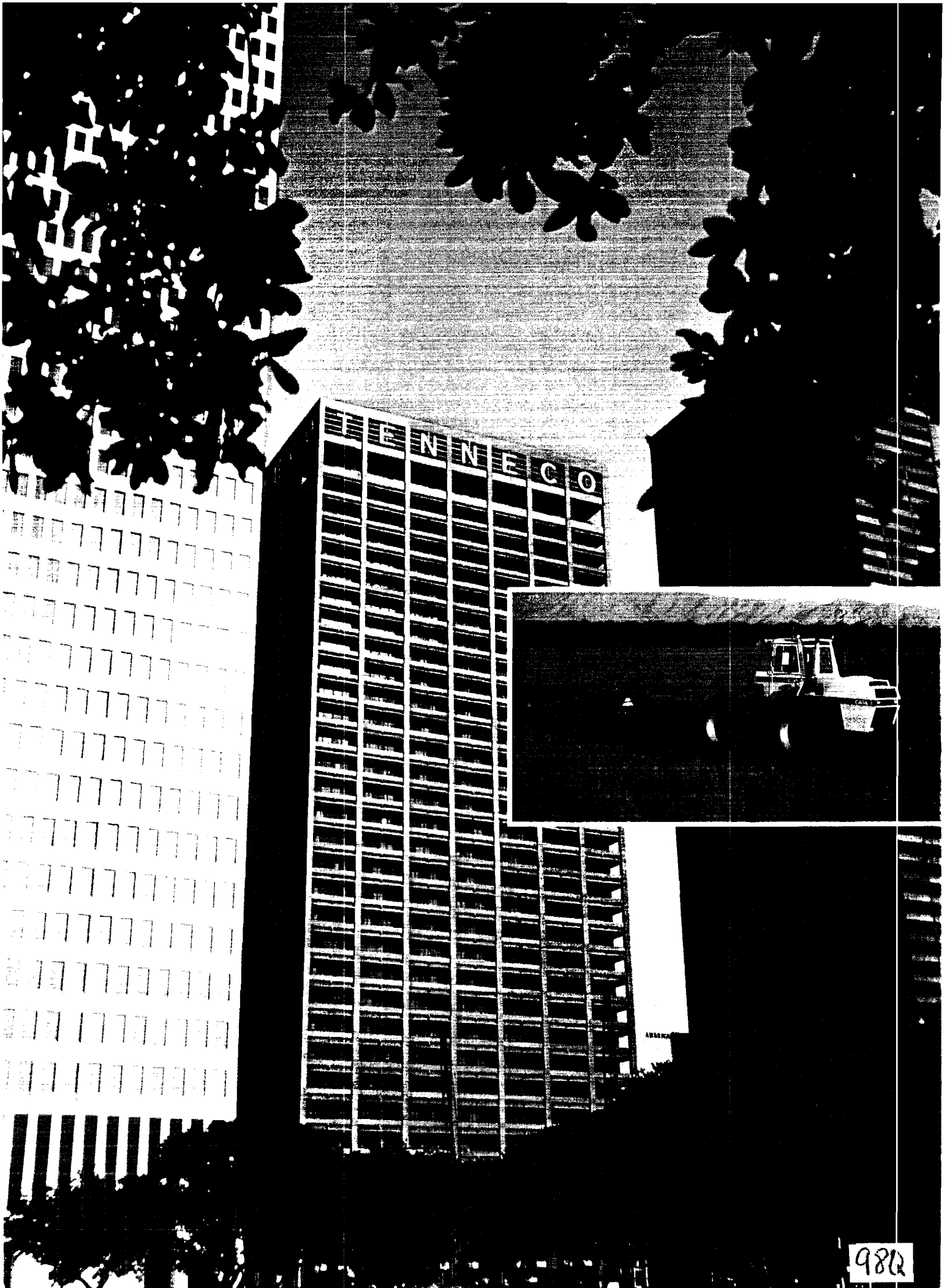


The philosophy of Land Management is to develop and utilize lands to produce the optimum long-term benefit to the company and the communities that we serve. This philosophy has resulted in the development of thousands of acres of highly productive farmland and development of well-planned urban community environments.

Planned Communities Stockdale, in Southwest Bakersfield, is considered to be one of the country's most successful master-planned communities. Predesigned residential areas are interspersed with recreational, educational, commercial and industrial sites. Through our master plan we are serving the diverse needs of a growing community.

Another planned community is in Sierra Vista, 70 miles southeast of Tucson, Arizona. Here we are developing a balanced, healthy environment of residential, commercial and recreational facilities, designed to meet people's needs while preserving the beauty of the Arizona landscape.

Agricultural Development and Leasing Most of our farm and grazing land is leased to independent farmers and ranchers; the rest is operated by Tenneco West. These lands are developed and improved to provide the most efficient operations and maximum production from resources, for the present and in the future.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APPENDIX - SUPPORTING LETTERS

VIA WUI
TWI A BAK

PAREP 44117KT
MR. J.L. HEATH FM MOHAMMAD ASLAM COMML. SECY PAKISTAN.

RYTLX RCVD 27TH OCT,
ANNUAL DEMAND IN TONS AND PRCS IN DOLLARS PER TON:

BANANAS	25432 AT	400 TO 460
MANGOES	QUANTY NOT AVAILABLE AT	1250 TO 1600 BY AIR.
POTATOES	32264 AT	175
ONIONS	26420 AT	165
CITRUS	43546 AT	530 TO 865
TOMATOES	31368 AT	430
GARLIC	1510 AT	1115
COCUMBER	15422 AT	400

PRCS DEPND ON VARIETY PACKING GRAPING BUYING SEASON ACCORDNG TO AVAI
LABILITY
SALARY FOR REP VARY ACCORDING TO EXPERIENCE AVERAGE
DOLLARS 1500 OR 800 PLUS COMMISSION.

PAREP 44117KT
TWI A BAK

REPLY VIA MCI/WUI - 301

02/11/83 08:27 22

APPENDIX - SUPPORTING LETTERS (Continued)

FOLLOWING ADDITIONAL INFORMATION HAS ALSO BEEN COLLECTED:

A. NATIONAL LOGESTIC CELL CALCULATE TRUCK FREIGHT RATE FROM QUETTA TO KARACHI ON THE BASIS OF POINT 6490 PAISA REPEAT POINT.6490 PAISA PER TON PER KILOMETRE. ACCORDINGLY RATES ARE AS UNDER:-

B. PAKISTAN SHIPPING CORPORATION RUNS REFRIGERATED SERVICE BETWEEN KARACHI TO KUWAIT AND DUBAI (.) CONTAINER MEASURING 20 X 8 X 8 (TWENTY BY EIGHT BY EIGHT) ARE CHARGED AT U.S. DOLLAR 1400 PER BOX.

C. REGARDING QUETTA/KARACHI RAIL FREIGHT RATE PLEASE NOTE GOODS BOGIES BOT ATTACHED TO MAIL AND EXPRESS TRAINS BUT ATTACHED TO PASSENGER TRAINS AND TAKE FOUR DAYS TO REACH KARACHI(.) ITS FREIGHT CHARGES FROM QUETTA TO KARACHI ARE RS.4010/RPT RS.4010 (.) FREIGHT OF MAIL TRAIN BRAKEVAN IS RS.33.40 PER 50 KG (.) BIG VOLUME ITEMS ARE CHARGED AS ONE CUBIC FT. EQUAL TO 4 KG. FREIGHT OF REGULAR GOODS TRAIN(ONE BOGIE 4 WHEELER) FROM QUETTA TO KARACHI IS RS. 1280 IF PAYMENT MADE AT QUETTA AND RS.1345 IF PAYMENT MADE AT KARACHI.

BEST REGARDS.

SHAFIQ SIDDIQI

TWI A BAK

5618 ADBP PK

TWI A BAK
K

FROM: SHAFIQ ISMAIL SIDDIQI
DIRECTOR (PUBLIC RELATIONS)
AGRI.DEV.BANK OF PAKISTAN
HEAD OFFICE ISLAMABAD
TELEX NO.5618 ADBP PK

Ocean shipping rates
Pakistan National
Shipping Corp.
6 months charter
1 load per week

TO:
MR. J.L. HEATH

5618 ADBP PK
TWI A BAK

FROM: SHAFIQ ISMAIL SIDDIQI
DIRECTOR (PUBLIC RELATIONS)
AGRI.DEV.BANK OF PAKISTAN
HEAD OFFICE ISLAMABAD
TELEX NO.5618 ADBP PK

TO: MR. J.L. HEATH
TENNECO WEST INC

REF YOUR TELEX DTD NINETEENTH OCTOBER (.) MESSAGE RECEIVED FROM NATIONAL SHIPPING CORPORATION IS REPREODUCED BELOW:
QOTE EXPORT OF FRESH FRUITS VEGETABLE TO DUBAI/KWT FRATES FOR REFRIGERATED CGO USD 10 PE TON(.) OUR VSL ZIARAT HAS REFER CAPAIT " CAPACITY OF 25369 CFT AND CAN MAINTAIN RQRD TEMERATURE WITHOUT ANY PROBLEM (.) NESIDE REFER VSL HAS 45015 CFT FOR CARRYING GENEGO AND ONIONS (.) VSL IS RPR AND REQUIRE ONE MONTHS NOTICE BEFORE WE CAN ACCEPT ANY OTHER DTLS LIKE TYPE A QTY OF CGO REQUIRED TO SHIP REDS UNQUOTE VLS CONFIRM DELIVERY OF MATERIAL ALREADY SENT(.)
REGARDS.
S.I. SIDDIQUI

10/24/83 3:30 P
Replied Verbal to Mary Jane TW

TWI A BAK

HAVE U RECVD OK

0644 10/26
PLS REPLY VIA TRT

25/10/83 04:16 30

APPENDIX - SUPPORTING LETTERS (Continued)

OCT. 20, 1983
TLX 10702

ATTN: MR. J. L. HEATH - AGRCULTURAL ANALYST

THIS YR TLX OCT. 19.

- IT WAS CERTAINLY A PLEASURE MEETING TRACY PARK, ED MOORES AND TALKING TO U ON PHONE. PLEASED TO FURNISH REPLY YR QUESTIONS FOR COLD STORAGE:

A. FOR BEST INSULATION AVAILABLE THERMOPORE CORKSHEET. ALTERNATIVE PRESENTLY NOT AVAILABLE.

B. PRESTRESSED CONCRETE SLABS NOT READILY AVAILABLE. THERE IS A MANUFACTURER AREA AND PRESENTLY MARKETING STANDARD SIZES 8 FT X 4 FT UPTO 50 FT. YR DESIRED SIZE CAN BE MANUFACTURED.

C. LUMBER SIZE 2" X 4" OR 2" X 6" AVAILABLE, GENERALLY PRICES ARE PAK RUPEES 200/- CU.FT. $1258 K/hand cut

D. PLYWOOD 3/4" SIZE AVAILABLE IMPORTED. PRICES ARE PAK RUPEES 350/- EACH SHEET OF 6 FT / 4 FT. $26.42

E. EUROTHENE NOT ALWAYS AVAILABLE AND NOT IMPORTED.

F. MILD STEEL BAR 3/4" AVAILABLE AT RATE PAK RUPEES 5000 PER TON. $ 57.

G. CEMENT AVAILABLE PAK RUPEES 1300 PER TON. $98.11/2200#

H. LABOUR COST.

(1) NON SKILLED - RUPEE 40/- PER DAY $3.02
(2) MASON - RUPEE 100/- PER DAY 7.55
(3) CARPENTER - RUPEE 100/- PER DAY
(4) SUB-ENGINEERS - FROM RUPEE 2000/- TO 5000/- PER MONTH (EXPERIENCED)
(5) QUALIFIED ENGINEER - RUPEE 5000/- TO 10,000/- PER MONTH $377.36 $754.72

I. ROOF MATERIAL ROOF FELT AND PLASTIC BITUMEN WITH THERMOPORE AVAILABLE.

J. GOOD EXPERIENCED CONTRACTOR IN COLD STORAGE ALSO AVAILABLE M/S PROGRESSIVE WAYS LTD ON LABOUR CHARGES BASIS.

- SINCERELY HOPE HAVE ANSWERED ALL YR QUESTIONS. PLS SEND COPY THIS TLX TO TRACY.

WITH BEST PERSONAL REGARDS.
HUSAIN NASSER
MANAGING DIRECTOR
PCL (PAKISTAN) LTD.

TKJ A BAK

AGRICULTURAL
CHEMICAL ANALYSIS
PETROLEUM

BC LABORATORIES, INC. FOUNDED IN 1949
J. J. EGLIN, REG. CHEM. ENGR.
3016 UNION AVE. BAKERSFIELD, CALIFORNIA 93305 PHONE 325-7475

Submitted By: J L Heath Agriculture Analyst & Consultant
P. O. Box 906
Bakersfield, California 93302

Date Reported: 9/1/83
Date Received: 8/25/83
Laboratory No.: 9404

Sample No.	Description	Sat'd. Paste pHs	Saturation %	ECe Millimhos/ CM at 25°	% of Total Soluble Cations in Saturated Soil Extract: (Ca) %	(Mg) %	Calcium Requirement (Gypsum) GR T/A6"	ESP	Insoluble Calcium (Limestone) CaCO3 ppm	Nutrients Parts Per Million: Nitrate N	Phos. P	Potash K	Boron ppm s'at'd. ext.	DTPA Ext'ble Zinc ppm
#1	Quetta 28 17B	8.1	36	1.1	44	16	none	2.47	165,900	(-) 3	2	120	0.6	0.3
#2	Quetta 29 30B	8.1	50	1.4	43	12	none	3.31	187,400	(-) 3	4	260	1.2	0.4
#3	32 28B	8.0	44	1.0	50	11	none	2.20	155,400	(-) 3	8	210	0.8	0.4
#4	Loralai 41	8.2	39	1.4	43	14	none	2.97	170,100	3	2	130	0.7	0.2
#5	48 28B	7.9	35	1.2	38	18	none	3.08	94,300	3	3	60	0.6	0.4

(-) refers to "less than"

B C LABORATORIES, INC.

BY J. J. Eglin

kc

Other Constituents	#1	#2	#3	#4	#5
Chloride, Cl, epm	2.4	3.3	1.2	2.4	1.8
Iron, ppm	14.0	8.0	10.4	14.4	17.6
Copper, ppm	0.9	1.8	1.9	1.4	1.5
Manganese, ppm	20.4	30.4	26.0	14.4	32.0

ESP(est) **Exchangeable Sodium Percentage, estimated**— A close approximation of the degree the soil exchange complex is saturated with sodium. Exchangeable sodium has two effects: (1) permeability, (2) toxicity to sensitive crops.

Below 10	Generally no permeability problem due to sodium. However, sodium sensitive crops may show leaf burn at ESP below 10.
10 – 15	Possible permeability problems with clay loams and clays (SP above 50).
Above 15	Permeability problems are likely on all mineral soils with possible exceptions of sands and loamy sands (SP below 20).

AGRICULTURE
CHEMICAL ANALYSIS
PETROLEUM
BC LABORATORIES, INC.
4100 PIERCE ROAD, 93308 BAKERSFIELD, CALIFORNIA 93308 PHONE 327-491

J. L. Heath
P. O. Box 906
Bakersfield, California 93302

Date Reported: 9/2/83
Date Received: 8/25/83
Laboratory No.: 9403

Marked: Water Sample

Irrigation WATER ANALYSIS

Salinity, EC x 10^3 (Mmhos/cm) @ 25° C

Below 0.5	Very low salt content, may cause permeability problems.
Below 0.75	Low salinity hazard - sat. for most crops.
0.75 - 1.5	Medium salinity hazard - sat. for moderately salt tolerant crops.
1.5 - 3.0	High salinity hazard - sat. for highly salt tolerant crops.
Over 3.0	Very high salinity hazard - generally unsuitable for continual use except under favorable conditions of soil, climate, tolerance of crop and necessary leaching.

NOTE: This interpretation of EC assumes that 10-20% of the total water applied passes through and below the root zone. In most cases deep percolation losses will satisfy this leaching requirement for the usual crops of the area.

Salinity
EC Mmhos/cm = 0.93

Boron, ppm

Below 0.5	Satisfactory for all crops.
0.5 - 1.0	Satisfactory for most crops; sensitive crops may show injury - leaf injury, but yields may not be affected.
1.0 - 2.0	Satisfactory for semi-tolerant crops. Sensitive crops usually reduced in yield and vigor.
2.0 - 4.0	Only tolerant crops produce satisfactory yields.

Boron, (B) = 0.38 ppm

Chloride, expressed as epm.

Fruit crops in general and many wood ornamentals are chloride sensitive.

Below 2	Satisfactory for all crops.
2 - 10	Range associated with leaf burn on chloride sensitive crops.
Above 10	Generally unsatisfactory for chloride sensitive crops.
CAUTION:	Under high rates of evaporation water with 3 epm chloride has caused leaf burn on sensitive tree crops.

CHLORIDE (Cl) = 1.46 epm.

SAR Sodium Adsorption Ratio. A calculated valve used to estimate the exchangeable sodium percentage (ESP) of a soil after long term use of the water.

SAR (Water)	ESP (Soil)	
Below 6	Below 10	No soil permeability problem due to sodium.
6 - 9	10 - 15	Possible permeability problems with fine textured soils (saturation percentage above 50).
Above 9	Above 15	Permeability problems likely on all mineral soils with possible exception of very coarse textured soils (saturation percentage below 20).

NOTE: Permeability problems are more probable at a given SAR with waters of low salinity than at high salinity.

***SAR of Water = 4.68**
ESP of Soil = 1.76

pHc** = 7.14

Gypsum Requirement = none Lbs. 100% Gyp./Hr./100 Gal./min.
(for treating "Residual Sodium Carbonate")

Constituents PPM (parts per million)

Calcium, (Ca)	73.	Nitrate, (NO_3)	1.3	Carbonates, (CO_3)	0.
Magnesium, (Mg)	24.	Nitrate, (N)	0.3	Bicarbonates, (HCO_3)	295.
Sodium, (Na)	80.			Chlorides, (Cl)	51.7
		pH	6.6	Sulphates, (SO_4)	139.
Total Hardness as $CaCO_3$	281.4 (16.4 gr/gal)			Total Dissolved Solids	675.

* Adjusted SAR.
** Values of pHc above 8.4 indicate tendency to dissolve lime from soil through which the water moves; values below 8.4 indicate tendency to precipitate lime from waters applied.

B C LABORATORIES
By J. J. Eglin
J. J. Eglin

ANALYSIS OF APPLE LEAVES, TERMINAL SIX INCHES
SARIAB HORTICULTURAL FIELD STATION, JULY 1983

TOTAL:	Leaf #1	Status	Reference
Nitrogen (N) %	2.05	Adequate range 2.0 - 2.5	Beutel
Phosphorus (P) %	0.24	" " 0.12 - 0.39	Walrath and Smith
Potassium (K) %	3.50	" " 1.30 - 3.10	Boyton and Burrell
Calcium (Ca) %	1.16	" " 1.13 - 1.48	Emmert
Magnesium (Mg) %	0.60	High, but not toxic	Beutell et al.
Boron (B) PPM	172.	High, may be toxic*	Beutell
Iron (Fe) PPM	340.	Toxic over 259 ppm	Adams et al.
Manganese (Mn) PPM	120.	High, but within growing range	Epstein and Lilleland
Copper (Cu) PPM	16.	Adequate range	Kenworthy et al.
Zinc (Zn) PPM	16.	Adequate	Beutell et al.
Sodium (Na) %	0.04	No problem	
Chloride (Cl) %	0.02	No problem	
Molybdenum (Mo) PPM			
Lithium (Li) PPM			
Sulfur (S) %			

* The source of excessive Boron is not clear. Quetta water analysis shows 0.38 ppm B. Of the five soil samples from Sariab Horticultural Field Station only sample #2 showed Boron above 1 ppm.

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BY J. J. Eglin
J. J. Eglin

Check Your Own Critical Leaf Mineral Levels for Fruit and Nut Trees[1]

(July Samples)

	% Nitrogen (2)		% Potassium (3)		% Mg	% Ca	% Cl	% Na	Boron (ppm)			Zn (ppm)
	Deficient		Def.	Adeq.	Adequate		Excess (4)		Def.		Excess	Def.
	Below	Adequate	Below	Over	Over	Over	Over	Over	Below	Adeq.	Over	Below
Almonds	1.9	2.0-2.5	1.0	1.4	0.25	2.0	0.3	0.25	25	30-65	85	15
Apples	1.9	2.0-2.4	1.0	1.2	0.25	1.0	0.3	—	20	25-70	100	14
Apricots (ship)	1.8	2.0-2.5	2.0	2.5	—	2.0	0.2	0.1	15	20-70	90	12
Apricots (can)[2]	2.0	2.5-3.0	2.0	2.5	—	2.0	0.2	0.1	15	20-70	90	12
Cherries (sweet)	—	2.4-3.0	0.9	—	—	—	—	—	20	——	—	12
Figs	1.7	2.0-2.5	0.7	1.0	—	3.0	—	—	—	——	300	—
Olives	1.4	1.5-2.0	0.4	0.8	0.10	1.0	0.5	0.2	14	19-150	185	—
Nectarines & freestone peaches	2.3	2.4-3.3	1.0	1.2	0.25	1.0	0.3	0.2	18	20-80	100	15
Peaches (cling)	2.4	2.6-3.5	1.0	1.2	0.25	1.0	0.3	0.2	18	20-80	100	15
Pears	2.2	2.3-2.8	0.7	1.0	0.25	1.0	0.3	0.25	15	21-70	80	15
Plums (Japanese)	—	2.3-2.8	1.0	1.1	0.25	1.0	0.3	0.2	25	30-60	80	15
Prunes	—	2.3-2.8	1.0	1.3	0.25	1.0	0.3	0.2	25	30-80	100	15
Walnuts	2.1	2.2-3.2	0.9	1.2	0.3	1.0	0.3	0.1	20	36-200	300	15

Adequate levels for all fruit and nut crops: Phosphorus is 0.1-0.3%; Copper, over 4 ppm; Manganese, over 20 ppm.

(1) Leaves are from spurs (fruiting & non-fruiting) on spur bearing trees, fully expanded basal shoot leaves on peaches & olives, and terminal leaflet on walnut.

(2) % Nitrogen in August and September samples can be 0.2-0.3% lower than July samples and still be equivalent. Nitrogen levels higher than underlined values will adversely affect fruit quality and tree growth. Maximum nitrogen for Blenheims should be 3.0% and Tiltons 3.5%.

(3) K levels between deficient and adequate are considered "low" and may cause reduced fruit sizes in some years. Potash applications recommended for deficient orchards but only test applications for "low" K orchards.

(4) Excess Na or Cl causes reduced growth at levels shown. Leaf burn may or may not occur when levels are higher. Confirm salinity problems with soil or root samples.

—James A. Beutel, Extension pomologist,
University of California, Davis.

Tissue Analysis Values Useful in Indicating Nutrient Status *

Plant		Element	Type of culture	Tissue sampled	Age, stage, condition or date of sample[b]	Range in dry matter unless otherwise indicated					Reference[c]
Common and scientific name[a]	Variety (when stated)					Showing deficiency symptoms	Low range	Intermediate range[a]	High range	Showing toxicity symptoms	
Angelica (*Angelica sylvestris*)		Sr ppm.	Field	Tops	In fruit	...	...	14.00	...	...	Bowen and Dymond (1955)
Apple (*Malus* spp.)		As ppm.	Field	Fruit	Mature	...	...	0.36	...	...	Jadin and Astruc (1912)
			Field	Fruit	Mature	...	...	0.07-0.19	...	...	von Fellenberg (1929)
			Field	Fruit	Mature	...	...	0.30-0.70	...	...	Shtenberg (1941)
		Ba ppm.	Field	Fruit	Mature	...	...	3.00	...	...	Robinson *et al.* (1917)
			Field	Leaves	Mature	...	...	55.00	...	...	Bradford (unpublished)
		B ppm.	Field	Leaves	.....	9.00-11.00	...	17.00-18.00	...	...	Askew (1935)
			Field	Leaves	.....	15.00-20.00	...	25.00-34.00	...	...	Askew and Chittenden (1936)
			Field	Leaves	.....	4.80-6.80	...	10.80-18.20	...	...	McLarty *et al.* (1936)
			Field	Leaves	.....	10.20-15.00	...	13.30-28.00	...	...	Woodbridge (1937)
			Field	Leaves	.....	4.80-16.10	...	10.80-24.70	...	...	Woodbridge (1937)
		Ca %	.....	Leaves	From terminal ends, July-August	...	0.72	...	...	...	Wallace (1939, 1940)
			.....	Leaves	.....	0.56	...	1.10	...	...	Wallace (1951)
			Field	Leaves	.....	...	1.13-1.48	...	...	...	Emmert (1955)
			Field	Leaves	Mature	...	...	1.40	...	...	Kenworthy (1961)
			Field	Leaves	Late July and early August	...	...	1.25	...	...	Eggert (1957)[a]
			Sand	Leaves	.....	0.60	...	...	...	...	Shibukawa *et al.* (1958)[a]
	Delicious	Cl %	Slop	Leaves	May	...	0.01	...	0.21 (growth depression)	...	Dilley *et al.* (1958)
		Cu ppm.	Field	Leaves	Uppermost four	1.00-4.00	...	3.20-12.00	...	...	Dunne (1938)
			Field		.....	2.00-2.50	...	5.10-6.00	...	...	Bould *et al.* (1950)
			Field	Leaves	.....	...	...	23.00	...	...	Kenworthy (1961)
			Field	Leaves	.....	<5.00	...	...	...	...	Bould *et al.* (1954)
			Field	Leaves	.....	1.00-3.60	...	5.50-12.00	...	...	Lal and Subba Rao (1953)
			Field	Leaves	.....	...	<4.00	...	...	...	Teakle (1942)[a]

* Source: Diagnostic Criteria for Plants and Soils, Homer D. Chapman, Editor
University of California, Riverside

Apple (Continued)		F ppm.	Exposed to 1.5 ppb. of F	Leaves	Not specified				35 00–48 00	72 00–234 00	Adams *et al.* (1957)
			Exposed to 5.0 ppb. of F	Leaves	Not specified				37 00	79 00–258 00	Adams *et al.* (1957)
			Exposed to 10.0 ppb. of F	Leaves	Not specified					142 00–194 00	Adams *et al.* (1957)
			Before and after exposure to HF gas	Leaves	Not specified			24 00	50 00		Griffin and Bayles (1952)
		Mg %	Sand	Leaves	June-July	0 003–0 091		0 12–0 11			Wallace (1930)
			Field	Leader tip leaves	February-March, S. Hemisphere	0 17–0 38		0 32–0 78			Kidson *et al.* (1940)
			Field	Older leader leaves	February-March, S. Hemisphere	0 05–0 17		0 22–0 45			Kidson *et al.* (1940)
			Field	Leaves	July-September, near base of terminal shoots	0 05–0 19		0 18–0 29			Wallace (1940*a*)
			Field	Older leaves	July, current season's shoots	0 13–0 18		0 14–0 19			Wallace (1940*b*)
			Field	Leaves	July, median shoots	0 02–0 33		0 21–0 53			Boynton *et al.* (1943)
			Field	Leaves	Late July and August			0 35			Eggert (1957)[a]
			Sand	Leaves		0 20–0 29					Shibukawa *et al.* (1958)[a]
			Field	Leaves	Midsummer, median shoots	0 07–0 19					Boynton *et al.* (1943)
			Soil	Leaves	July	0 23–0 47		0 64–1 13			Southwick (1943)
			Field	Leaves	August, from mid-shoot	0 09–0 23		0 23–0 38			Southwick (1943)
	McIntosh		Sand	Leaves	June-September	0 08–0 20		0 16–0 72			Boynton and Burrell (1944)
			Field	Leaves	July-October	0 14–0 18		0 19–0 29			Goodall (1948)
			Field	Leaves	July-September	0 05–0 23		0 20–0 25			Nicholas and Jones (1944)
			Field	Leaves	August, from mid-shoot	0 08–0 20		0 11–0 27			Boynton (1948)
			Sand	Shoot bark	December-January	0 088		0 16–0 29			Wallace (1930)
			Sand	Shoot wood	December-January	0 042		0 07–0 08			Wallace (1930)
			Sand	Trunk bark	December	0 065–0 067		0 16–0 19			Wallace (1930)
			Sand	Trunk wood	December	0 012–0 017		0 03–0 04			Wallace (1930)

Plant		Element	Type of culture	Tissue sampled	Age, stage, condition or date of sample[b]	Range in dry matter unless otherwise indicated					References[d]
Common and scientific name[a]	Variety (when stated)					Showing deficiency symptoms	Low range	Intermediate range[c]	High range	Showing toxicity symptoms	
Apple (Continued)		Mg % (cont.)	Sand	Stems and petioles	June-July	0.12-0.16	...	0.19-0.33	...	...	Wallace (1930)
			Field	Leaves	September	0.12-0.20	...	0.21-0.49	...	...	Walker and Fisher (1957)
			Field	Leaves	August, middle leaf of current season's terminal growth	<0.20	...	>0.21	...	...	Fisher *et al.* (1957)
			Field	Leaves	At base of new shoots	0.12	...	0.21	...	...	Blanchet (1954)
			Field	Leaves	With symptoms	0.04-0.05	...	...	...	...	Mulder (1950)
			Field	Leaves	Healthy, from trees with symptoms	...	...	0.09-0.10	...	...	Mulder (1950)
			Field	Leaves	Healthy, from healthy trees	...	...	0.14-0.45	...	...	Mulder (1950)
			Field	Leaves	Healthy, from healthy trees in Mg-deficient orchard	...	...	0.13-0.20	...	...	Mulder (1950)
			Field	Leaves	With symptoms, from Mg-deficient orchard	0.130-0.135	...	...	...	...	Mulder (1950)
			Field	Leaves	From twig bearing fruit on healthy tree in Mg-deficient orchard	...	...	0.108	...	...	Mulder (1950)
			Field	Leaves	.....	0.05-0.18	...	0.26-0.56	...	...	Woodbridge (1953)
			Field	Leaves	Mid-shoot (August)	...	0.24	...	...	...	Emmert (1955)[e]
			...	Leaves	.....	...	<0.20	...	...	...	Boynton and Peech (1945)[e]
		Mn ppm.	Field	Leaves	.....	15.00	...	30.00	...	...	Nicholas (1946)
			Field	Leaves	.....	5.00	...	55.00-125.00	...	...	Epstein and Lilleland (1942)
			Control	Leaves	.....	1.00-2.00	...	33.00	...	...	Wadleigh (1957)
			Field	Leaves	July	2.00-18.00	...	25.00-50.00	...	...	Wuderspahn (1956)
			Field	Leaves	.....	11.00	...	87.00	...	...	Woodbridge and McLarty (1951)
			Field	Leaves	.....	17.00	...	24.00	...	...	Boynton *et al.* (1951)
	Rome Beauty	Mo ppm.	Solution	Leaves	Showing Mo deficiency, and no deficiency	0.05	...	0.16	...	...	Fernandez and Childers (1960)[e]

Apple (Continued)	McIntosh	N %	Field	Leaves	July (median shoot position)	...	1.80	...	2.10	...	Boynton and Cain (1942)
	McIntosh		Field	Leaves	July	...	1.85	...	2.11-2.37	...	Boynton and Burrell (1944)
	Stayman		Field	Leaves	July-August (median)	<1.48	1.50-1.65	1.65-1.80	>1.80	...	Wander (1946)
	McIntosh		Field	Leaves	July (median)	...	...	1.90-2.10	...	...	Boynton *et al.* (1948)
			Field	Leaves	July (median)	1.50	...	2.00	...	...	Walrath and Smith (1952)
	Stayman		Field	Leaves	June (median)	...	...	2.58	...	...	Smith and Taylor (1952)
			Field	Leaves	July (median)	...	...	2.63	...	...	Smith and Taylor (1952)
			Field	Leaves	August (median)	...	...	2.15	...	...	Smith and Taylor (1952)
			Field	Leaves	September (median)	...	...	2.34	...	...	Smith and Taylor (1952)
			Field	Leaves	Late July and August	...	...	2.40	...	...	Eggert (1957)[a]
	Delicious		Field	Leaves	.....	...	...	2.90	...	...	Shibukawa *et al.* (1959)[a]
			Sand	Leaves	.....	1.50-2.00	...	...	...	...	Shibukawa *et al.* (1958)[a]
			Field	Leaves	.....	1.96	1.96-2.10	2.10-2.38	2.38-2.94	...	Lalatta and Fontana (1960)[a]
			Field	Leaves	From midsummer shoots	...	...	1.85-2.00	...	...	Boynton and Compton (1945)[a]
			Field (plots)	Leaves	Third and fourth from base of shoots (late July-early August)	...	2.13	2.59	...	...	van der Boon and Pouwer (1960)[a]
			Field	Leaves plus petioles	Mid-shoot; current season's growth (first 2 weeks of August)	...	1.90	...	...	...	Emmert (1955)[a]
	Cox Orange Pippin		Field	Leaves	From mid-third region of extension shoots (August)	...	...	2.00-2.20 (optimum yield and fruit color)	2.69 (impaired fruit color)	...	Bould and Jarrett (1962)[a]
		P %	Field	Leaves	From tips of shoots (June-September)	...	...	0.19-0.32	...	...	Emmert (1954)
	Delicious		Field	Leaves	20 days after bloom	...	...	0.28	...	...	Rogers *et al.* (1953)
			Field	Leaves	200 days after bloom	...	...	0.10	...	...	Rogers *et al.* (1953)
			Field	Leaves	Harvest	...	...	0.21	...	...	Batjer *et al.* (1952)
			Field	Bark	Harvest	...	...	0.14	...	...	Batjer *et al.* (1952)
			Field	Wood	Harvest	...	...	0.011	...	...	Batjer *et al.* (1952)
			Field	Fruit	Harvest	...	...	0.087	...	...	Batjer *et al.* (1952)
			Field	Leaves	July-August	0.10	...	0.12-0.39	...	...	Walrath and Smith (1952)
			Field	Leaves	From terminal shoots	...	...	0.10-0.30	...	...	Walrath and Smith (1952)

Plant		Element	Type of culture	Tissue sampled	Age, stage, condition or date of sample[b]	Range in dry matter unless otherwise indicated					References[d]
Common and scientific name[a]	Variety (when stated)					Showing deficiency symptoms	Low range	Intermediate range[c]	High range	Showing toxicity symptoms	
Apple (Continued)	Stayman	P % (cont.)	Field	Leaves	June-September	..	..	0.14-0.18	..	..	Smith and Taylor (1952)
	McIntosh		Field	Leaves	July-August	..	0.15-0.19	0.20-0.30	..	..	Boynton *et al.* (1944)
			Sand	Leaves	(?)	0.075	..	..	0.37	..	Cullinan and Batjer (1943)
			Field	Leaves	..	..	..	0.07-0.19	..	..	Hibbard and Noer (1959)
			Field	Leaves	July-August	..	0.09-0.14	0.23-0.30	0.54-0.75	..	Kenworthy (1950)
			Field	Leaves	Late July and August	..	..	0.22	..	..	Eggert (1957)[e]
			Field	Leaves	From terminal shoots	..	..	0.10-0.30	..	..	Wehunt and Purvis (1954)[e]
			Field	Leaves	Mature, on spurs, or near base of current season's growth	..	<0.10	>0.10	..	..	McCollum (1952)[e]
			Field	Leaves	..	0.12	0.12-0.15	0.15-0.18	0.18-0.21	..	Labatta and Fontana (1960)[e]
			Sand	Leaves	..	0.09-0.13	..	..	..	..	Shibukawa *et al.* (1958)[e]
			Field	Leaves	..	..	..	0.14	..	..	Shibukawa *et al.* (1959)[e]
	Jonathan		Field	Blades	From mid-shoots (August)	..	0.15	0.17	..	..	Mochizuki and Hanada (1959)[e]
			Field	Petioles and midribs	From mid-shoots (August)	..	0.09	0.12	..	..	Mochizuki and Hanada (1959)[e]
		K %	Field	Leaves	..	0.23-0.52	..	0.42-1.05	..	..	Wallace (1931)
			Sand	Leaves	October	0.33-0.68	..	0.83-2.31	..	..	Batjer and Degman (1940)
			Field	Leaves	July-August	0.28-0.90	..	0.74-1.49	..	..	Reuther and Boynton (1939)
			Sand	Leaves	..	0.37-0.59	..	1.70-2.90	..	..	Edgerton (1941)
	McIntosh		Field	Leaves	September	0.25-0.46	..	0.54-1.28	..	..	Burrell and Cain (1941)
			Field	Leaves	From middle of terminal shoots (July-August)	0.28-0.95	..	0.73-1.56	..	..	Reuther (1941)
	McIntosh		Field	Leaves	Shoots (late July)	0.56-0.58	..	1.16-2.18 (critical level)[e]	..	..	Burrell and Boynton (1943)
	McIntosh		Sand	Leaves	June	0.60-0.75	..	1.30-3.10	..	..	Boynton and Burrell (1944)
			Field	Leaves	July	0.60-0.75	..	1.01-1.83	..	..	Boynton and Burrell (1944)
			Field	Leaves	July-October	0.45-0.93	..	1.53-2.04	..	..	Goodall (1945)

Apple (Continued)			Field	Leaves	July–September	0.79–1.10		1.00–2.08		Nicholas and Jones (1944)
	Delicious		Sand	Leaves	From shoots (May)	0.31–0.90		1.81–3.35		Edgerton (1948)
	McIntosh		Sand	Leaves	From shoots (May)	0.24–0.63		1.66–3.70		Edgerton (1948)
	McIntosh		Sand	Leaves		0.87		1.19–3.63		Cain (1948)
			Field	Leaves	March–April	0.41–1.25		1.31–2.21		Avent (1957)
			Field	Leaves	From mature spurs (June–July)	<0.50		>1.00 (critical level)[b]		McCollum (1953)
			Field	Leaves	Late July and August			1.50		Eggert (1957)[a]
			Sand	Leaves		0.60–1.00				Shibukawa *et al.* (1958)[a]
			Field	Leaves				1.20		Shibukawa *et al.* (1959)[a]
			Field	Leaves		0.90	0.90–1.37	1.37–1.56	1.56–2.15	Lalatta and Fontana (1960)[a]
			Field	Leaves	Mature, on spurs, or near base of current year's growth (June 15–July 15)		<1.00	>1.00		Lilleland and McCollum (1961)[a]
	Red Delicious		Field	Leaves	Mid-terminal, from periphery of trees 5 to 8 feet above ground (mid-July)			0.86–1.34		Barden and Thompson (1962)[a]
			Field	Leaves				>1.70		Batjer and Magness (1939)[a]
		Ag ppm.	Garden	Leaves	Mature			0.40		Bradford (unpublished)
		Sr ppm.	Field	Leaves and twigs	Mature				2,780.00	Bowen and Dymond (1955)
		Zn ppm.	Field	Leaves	Apical 6 to 8 inches (September–October)	4.00–54.00		4.00–80.00		Chandler *et al.* (1933)
			Field	Stems	Apical 6 to 8 inches (September–October)	4.00–28.00		16.00–80.00		Chandler *et al.* (1933)
			Field	Leaves		5.00–10.00				Bould *et al.* (1953*a*, 1953*b*)
			Field	Leaves		1.20–2.30		9.60–10.80		Bould *et al.* (1949)
			Field	Leaves	August	<14.00				Thomas *et al.* (1949)
			Field	Leaves		3.00–22.00		6.00–40.00		Woodbridge (1951)
Apricot (*Prunus armeniaca*)		As ppm.	Field	Leaves	Mature				6.10 (injured)	Lindner (1943)
		B ppm.	Field	Leaves	October			52.00		Eaton (1935)
			Field	Leaves	December	12.50		32.00–40.00		Askew and Williams (1939)
			Sand	Leaves	June	25.00–68.00		21.00–29.00		Fitzpatrick and Woodbridge (1941)

ZONE 3 - SEASONAL TONNAGE

Handled by the Marketing Organization, Metric Tons

Zone	District	Product	Mktg. Tons	Peak	Season	Vol. Mo.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	Khairpur	Citrus	2,000	Nov.	Nov-- Dec	1000											1000	1000
3	Khairpur	Dates	1,000	Aug.	Aug-- Sep	500								500	500			
3	Sukkur	Garlic	1,000	May	May-- Jun	500					500	500						
		TOTALS*	4000								500	500		500	500		1000	1000

Appendix 2. ZONE 4 - SEASONAL TONNAGE

Zone	District	Product	Export Tons	Peak	Season	Vol. Mo.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	Multan	Citrus	2,000	Nov.	Nov-- Dec	275											1,000	1,000
4	Sibbi	Apple	2,000	Oct.	Aug-- Oct	1000								665	670	665		
4	Sibbi	Apricot	250	June	June	200						250						
		TOTALS	4250									250		665	670	665	1000	1000

ZONE 5 - SEASONAL TONNAGE

Handled by the Marketing Organization, Metric Tons

Zone	District	Product	Mktg. Tons	Peak	Season	Vol. Mo.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5	Loralai	Apples	1,000	Oct.	Aug-- Sep	500								500	500			
5	Loralai	Grapes	300	July	Jul-- Sep	100							100	100	100			
5	Loralai	Plums	175	July	Jun-- Jul	85						100	75					
5	Loralai	Pomegr.	400	Sep.	Aug-- Oct	130								135	135	130		
5	Panjgoor	Dates	1,500	Aug.	Aug-- Sep	500								750	750			
5	Zhob	Apples	1,000	Oct.	Aug-- Sep	500								500	500			
5	Zhob	Grapes	700	July	Jul-- Sep	230							235	235	230			
5	Zhob	Plums	175	July	Jun-- Jul	85						90	85					
5	Zhob	Pomegr.	250	Sep.	Aug-- Oct	80								85	85	80		
		TOTALS	5500									190	495	2305	2300	210		

M E M O R A N D U M

O N

TAXES, CORPORATE STRUCTURE

AND

LABOUR LEGISLATION

FOR

PROPOSED FRUIT PROCESSING AND MARKETING

PROJECT IN BALUCHISTAN PROVINCE

SURRIDGE & BEECHENO
ADVOCATES & SOLICITORS
FINLAY HOUSE
I. I. CHUNDRIGAR ROAD
K A R A C H I - 3

KARACHI

AUGUST 1983

1. TAXES ON INCOME :

1.1 INCOME TAX:

Payable on "total income" - at 30% of such income; "total income" means all income received accruing or arising or deemed to have accrued, arisen or been received in Pakistan in any income year less allowable business expenditure (See Annexure "A") (including depreciation) (See Annexure "B").

1.2 SUPER TAX:

Payable on total income at 25% of such income.

REBATE: in the case of a domestic company (a Pakistani incorporated company) a rebate of 10% is allowed "in respect of its income profits or gains which are derived from processing freezing preserving and canning of food vegetable fruit grain meat fish and poultry. Rebate means reduction of super tax to 15%.

COMMENT :

The extent to which this rebate can be claimed will depend upon whether the activities of the Company fall within the activities stipulated i.e. whether any "processing" or "preserving" takes place.

1.3 EXPORT REBATE :

Where the total income of a domestic company includes any profit or gains derived from export of goods "manufactured" in Pakistan, income tax and super tax, if any payable in respect of such profits or gains shall be reduced by an amount equal to fifty five percent of the amount of income tax and super tax, if any, attributable to the sale proceeds of such goods.

COMMENT :

The availability of this rebate depends on whether and to what extent it can be said that the Company "manufactures" goods for export. Ordinarily "manufacture" connotes the subjection of goods or materials to a process which materially changes its character.

1.4 EXEMPTION :

1.4.1. Profits and gains derived by an assessee from an industrial undertaking set up between July 1, 1983 and June 30, 1988 for a period of five years beginning with the month in which the undertaking is set up or commercial production is commenced, whichever is later, are exempt from income tax and super tax provided the

industrial undertaking is :

(a) set up in the Province of Baluchistan

(b) owned and managed by a company formed and registered under the Companies Act, 1913 having its registered office in Pakistan

(c) engaged in the setting up of a hotel or in the manufacture of goods or materials or the subjection of goods or materials to such process.

1.4.2. COMMENT :

The availability of this exemption will depend again upon the extent to which it can be said that "goods" or "materials" (fruits) are subjected to a "process" and the nature of that process.

1.5. GENERAL COMMENT :

1.5.1 Exemptions from tax for five years is available in respect of the profits and gains derived from poultry farming, fish catching, cattle or sheep breeding, poultry processing dairy farming, fish-farming and date processing by an industrial undertaking set up anywhere in Pakistan between 1st July 1983 and 30th July 1988. A similar tax holiday could in principle be extended to a "fruit-processing and marketing industry" and the

necessary application would have to be made and the terms negotiated with the Central Board of Revenue ("CBR").

1.5.2 Alternatively the CBR could be asked to confirm that the undertaking of the Company would be an industrial undertaking entitled to claim the exemption specified in para 1.4 above.

2. SALES TAX is payable on goods manufactured or produced in Pakistan payable by the manufacturer or the producer or imported into Pakistan payable by the importer (See 4 below).

2.1 No sales tax on goods sold for delivery outside Pakistan (export).

2.2 No sales tax on fresh fruits -
(Item 46 of Notification No.7 of 27th June 1951 made under Section 7(1) of the Sales Tax Act, 1951 added by Notification SRO 196 (R)/65 dated 15th September 1965).

3. EXCISE DUTY :

3.1 FEDERAL

Nil

3.2 PROVINCIAL :

Nil

4. CUSTOMS DUTY & SALES TAX ON IMPORTS :

Customs Duty and sales tax is payable at various rates depending upon the nature of the item imported. Sales Tax is payable on the duty-paid value of the goods. It is therefore difficult to be precise without knowing the exact nature of the item to be imported. For this purpose reference is necessary to the Customs Import Tariff.

4.1.1. MACHINERY and spare and component parts for use in conjunction therewith falling within certain headings of the Customs Import Tariff are subject to a duty of 40% ad valorem. (For the full text of the notification see Annexure C).

4.1.2. Most types of agricultural and horticultural machinery are free of Customs Duty.

4.2 PACKING MATERIALS; OFFICE EQUIPMENT :

The rate of duty varies according to the nature of the item. It is not possible to advise precisely without knowing exactly what the items are.

4.2.1 GENERALLY SPEAKING :

Packing material made of paper of various types appropriate for packaging of fruit are dutiable at 100% plus 10% Sales Tax or, in some cases, Rs.4000 per tonne plus 10% Sales Tax.

4.2.2. Office equipment and data processing machines are generally dutiable at 40% ad valorem plus 10% sales tax or 20% sales tax where the equipment is electrically operated except electric typewriters where the sales tax is only 10%.

4.3 SURCHARGE :

A surcharge of 5% of the value of all goods imported is levied as an additional customs duty but the surcharge is not taken into account for determining the duty-paid value for purposes of sales tax.

4.4 EXEMPTION :

Exemptions from customs duty and sales tax are available in respect of machinery (for definition of Machinery see Annexure 'C') to be installed in certain specified areas, including the Province of Baluchistan. The full text of these exemptions is contained in Annexures 'D' and 'E' respectively. The Federal Government also has power to exempt any goods from the whole or any part of the surcharge (See para 4.3).

4.5 Goods can only be imported under an Import Licence or Permit depending upon the nature of

the financing for the machinery/goods.
A fee of 2% of ad valorem (C&F value) of the goods to be imported is payable to the Chief Controller Imports & Exports for the issuance of such a licence. Normally no exemption is available from this fee but the Federal Government may by an order published in the Official Gazette exempt any importer from the payment of fee. If goods are exempted from the payment of customs-duty by the Federal Government, as a special case, no import licence fee is payable.

4.6 AGRICULTURAL PRODUCE CESS :

A customs duty of one-half per cent of the value (wholesale price) is levied upon the export of certain agricultural produce (including fruit). The Federal Government may exempt articles from this cess.

5. OTHER TAXES :

5.1 Octroi is a local government tax payable on the importation into certain specified local government areas (a district, Municipal limits of a town or city etc.) payable on goods intended for sale consumption or manufacture within the octroi limits. Transit passes are available

where goods are merely being imported into the octroi limits for immediate re-export therefrom. Depending upon the nature of the activities carried on by the Company this tax may be applicable.

6. CORPORATE STRUCTURE :

6.1 It will be necessary to incorporate a company in Pakistan to carry out the joint venture. The Company may be incorporated either as a private company or as a public company. A private company is one in which the number of shareholders cannot exceed fifty and which prohibits the issue of any shares to the public.

6.2 A company whether private or public in which any foreigner is a shareholder will require the approval of the Controller of Capital Issues, ("CCI") Ministry of Finance, to the issue of any capital by the Company. If the issued capital is in excess of Rs.10,000,000 the CCI usually imposes a condition that the Company will, if a private company, convert

itself into a public company and that shares will be offered to the Pakistani Public and government financial institutions such as the N.I.T. This condition can however be the subject of negotiation and could be waived.

6.3 We would therefore recommend that initially at least the joint venture company be incorporated as a private company. There is no limit on the amount of authorised capital that the Company can be authorised to issue by its Memorandum and Articles of Association.

6.4 A private company is incorporated by three persons subscribing their names to a Memorandum of Association which sets out the objects for which the Company is incorporated. The Articles of Association are the regulations of the Company and constitute a contract between the Company and its shareholders and each shareholder inter se. The Memorandum and Articles of Association must then be registered with the Registrar of Companies who will issue a Certificate of Incorporation, certifying that the Company is in existence. The Company, if incorporated as a private company may then commence business.

6.5 The costs of incorporation are as follows :-

		Rs. P.
1.	Stamp duty on Memorandum & Articles of Association.	950.oo
2.	Filing Fee Stamp Papers	100.oo
3.	Registration Fee :	
	If Authorized Capital is :	Fee.
	Rs. 100,000	500.oo
	500,000	1,300.oo
	1,000,000	2,300.oo
	1,500,000	2,550.oo
	2,000,000	2,800.oo
	3,000,000	3,300.oo
	4,000,000	3,800.oo
	5,000,000	4,300.oo
	10,000,000	6,800.oo
	20,000,000	11,800.oo
4.	Miscellaneous Expenses	2,000.oo
5.	Printing Costs (approx)	15,000.oo

6.6 Once the Company is in existence, negotiations between the shareholders to establish the financial and other bases of their relationship including management of the Company, would result in a Promotor's Agreement, including any amendments in the Articles of the Company required to be made to embody that Agreement.

6.7 A Technical Assistance Agreement setting out the technical assistance to be provided by TENNECO to the Company could also be drawn up. Arrangements whereby one company manages another for a fee based on latter's turnover ("managing agency") are not

allowed by law.

6.8 GOVERNMENT PERMISSIONS PROCEDURE.

6.8.1 Permission Letter from Ministry of Industries :

6.8.1.1 Application must be made to the Investment Promotion Bureau, Ministry of Industries, Government of Pakistan on Form IP-1 in 45 copies accompanied by :

(a) the Feasibility Report.

(b) the Promoters Agreement.

The application itself or the Promoters Agreement or both must contain a financing plan in clear terms and must show on the face of it that the Promoters have planned sources of sufficient funds for the Project. The debt equity ratio should not normally exceed 3.5 : 1.

The IPB is a co-ordinating department and its job is to circulate the application and its enclosures to all interested Ministries, Departments and Authorities for their comments. Usually a month is given for comments and thereafter IPB prepares a summary of the case for the Central Investment Promotions Committee (CIPCCOC).

6.8.1.2 CIPCCOC is a committee of about 25 officials chaired by the Secretary, Ministry of Industries, (Mr. Iqbal Saeed) meets approximately once a month in the last week of the month either in Islamabad, Karachi or Lahore. Each member has a copy of the application and enclosures. Advance notice is usually given to the applicant of the date and place of CIPCCOC's meeting and he is allowed to, and should, attend. The applicant is called in when his case is considered and must be prepared to answer questions on his application. If he cannot give satisfactory answers, the application will be deferred to a later meeting if further information is required.

After the CIPCCOC's meeting, Minutes of the proceedings and decisions are prepared and sent to IPB who drafts and issues the detailed permission letter in the case of an approved application. Permission Letters are usually issued about one month of CIPCCOC's meeting and could contain one or more unacceptable conditions which must then be amended by negotiations with IPB. It is not usually necessary to go back to CIPCCOC for decision

on an amendment although this could conceivably happen. This procedure cannot usually be completed in less than 3 months.

6.8.2 Consent Order of the Controller of Capital Issues ("CCI") :

6.8.2.1 After receipt of the Permission Letter from the IPB, application is made to the CCI for consent for the Company to issue capital (which includes Debentures as well as Shares and specific consent is required for the issue of Debentures).

The application follows the form of a questionnaire and is submitted with 6 copies accompanied by :

(a) copies of the Permission Letter.

(b) copies of the Memorandum and Articles of Association of the Company.

If the financial size of the project is very large or the foreign equity is in a substantial majority, the CCI will not decide the application himself but will refer it to the CCI's Advisory Committee, a body consisting of officers from the Finance Ministry, the State Bank and the financing institutions.

Applicants are not usually invited to attend before this Committee but it can, as stated above, impose a condition for the issue of shares to the public and NIT and the basis of their

allotment. After the application has been considered, CCI issues his consent order permitting the company to issue shares. However, please note that the issue of shares to foreigners also requires specific approval of the Exchange Control Department of State Bank of Pakistan.

6.8.3 State Bank's approval for the issue of shares to the foreigners :

6.8.3.1 The permission letter of the Investment Promotion Bureau usually requires that the equity of foreign promoters will be utilised towards payment for the importation of the plant and machinery required to be imported for the Project. Consequently permission will have to be sought from the State Bank of Pakistan for the opening by the Company of a foreign currency bank account in which the foreign promoters' share subscription monies can be paid. The monies in this account may then be used to purchase the necessary machinery by the Company.

6.8.3.2 The Bank in which the share subscription funds have been paid in must then be asked to issue a certificate certifying that the funds have been deposited, and on production of that certificate to the State Bank of Pakistan, the State Bank will issue a letter authorising the Company to issue shares to the foreign promoters to the extent of

the amount invested and certified by the Company's bank.

7. LABOUR LEGISLATION :

7.1 West Pakistan Industrial & Commercial Employment (Standing Orders) Ordinance 1968:

7.1.1 The West Pakistan Industrial & Commercial Employment (Standing Orders) Ordinance 1968, hereinafter referred to as the "Standing Orders Ordinance" applies to all industrial and commercial establishments which employ 20 or more workmen.

7.1.2 The Standing Orders provide for the minimum working terms and conditions for service for the workmen and no employer is permitted to reduce the terms and conditions of service laid down in the Standing Orders Ordinance. These terms can however be modified, altered or changed but that has to be done through the process of collective bargaining with the workmen to provide more favourable working conditions and terms of service to the workmen. Any agreement which reduces the benefits accorded to the workmen under the Standing Orders Ordinance would be null and void to the extent of such reduction.

7.1.3 The Standing Orders Ordinance applies to all categories of employees who fall within the term "workman" as defined in the Standing Orders Ordinance.

> "'Workman' means any person employed in any industrial or commercial establishment to do any skilled or unskilled, manual or clerical work for hire or reward."

7.1.4 Generally speaking, all those employees who are employed in clerical, manual, skilled or unskilled capacities or work, fall within the term of 'workman' under the Standing Orders Ordinance. It follows that employees working in supervisory capacity or mainly as supervisors or holding managerial positions would not fall within the term 'workman' under the Standing Orders Ordinance.

7.1.5 The Standing Orders Ordinance provides for the following benefits for the workmen:

7.1.5.1 <u>Compulsory Group Insurance</u> :

Under Standing Order 10-B the employer has to get all his permanent workmen insured against natural death, disability and death and injury arising out of contingencies not covered by the Workmens Compensation Act 1923 (See para 7.3 below).

The employer is responsible for the payment of the premium for the insurance policy.

7.1.5.2 Bonus :

Under Standing Order 10-C every employer making profits in any year has to pay within 3 months of the close of that financial year, bonus to all workmen who had put in service for a continuous period of 90 days during the bonus year. There is formula laid down for the payment of bonus which is paid from the profits of the company. Generally speaking this profit bonus payable under Standing Order 10-C is one month's salary as profit bonus.

7.1.5.3 Termination of employment :

The services of a permanent workman can be terminated on one month's salary or one month's notice in lieu of one month's salary. It is, however, necessary to explicitly state the reason of termination of service in the letter of termination. If the reason is not stated, the termination of service would become illegal. On the other hand if the reason stated amounts to a reason of 'misconduct', the termination of service would be illegal unless the workmen concerned was issued with the show cause notice, charge sheet, departmental enquiry held, second show cause notice given and the misconduct being established in accordance with the procedure

laid down. (For details of the procedure for disciplinary action see para 7.1.5.4).

At the time of termination of service by way of discharge on one month's salary or one month's notice in lieu of one month's salary, the employer has to give to the permanent workman concerned gratuity at the rate of 20 days wages for every completed year of service or any part thereof in excess of six months. No gratuity is however payable where the employer has established a contributory provident fund. General practice in most of the foreign companies, working in Pakistan, over a number of years is to have provident fund scheme as well as gratuity scheme. The rate and terms of gratuity scheme however vary from company to company. It may be noted that gratuity is not payable if the workman concerned is dismissed for misconduct. Provident Fund contribution is payable in all cases including that of dismissal from service.

7.1.5.4 Termination for misconduct :

The procedure prescribed for termination for misconduct is as follows :

a) A show cause notice is issued to the workman properly describing the offence alleged against the workman and he should be given at least 48 hours to submit his written explanation.

b) Upon receipt of the explanation, if the employer are not satisfied with the explanation, he should be directed to appear before an Enquiry Officer. The name of the Enquiry Officer, the date, time and place of enquiry together with the charges against the worker should be duly notified in writing to the workman. In the enquiry, the worker should be allowed to be assisted by a fellow worker of his own choice.

c) After the conclusion of the enquiry proceedings and in case the Enquiry Officer finds the worker guilty of the misconduct, the employer has to issue a second showcause notice to the worker enclosing with it the findings of the Enquiry Officer. If the worker requests, he should be furnished with copies of the entire record of enquiry proceedings.

d) The worker should be given an opportunity of personal hearing if he so requests and after receipt of the explanation of the worker to the second show cause notice, the employer can proceed to dismiss the worker concerned.

It must however be noted that the enquiry has to be conducted in a fair and impartial

manner. The Enquriry Officer himself though an officer or manager of the company must be an independent person.

7.1.5.5 Classification of workman :

The Standing Order classifies workers into following categories :

i) Permanent - A permanent workman is a workman who is employed on a work of permanent nature likely to last more than 9 months and has satisfactorily completed a probationary period of 3 months.

ii) Probationer - A probationer is a workman who is employed on probation for a period of 3 months. After satisfactory completion of 3 months probationary period he becomes a permanent workman.

iii) Temporary - A temporary workman is a workman who has been engaged for work which is of an essentially temporary nature likely to be finished within a period not exceeding 9 months.

iv) Badli - A badli is a workman who is appointed in place of a permanent workman or a probationer who is temporarily absent.

Under the Standing Orders Ordinance all types of workmen as described above have to be given proper

tickets, indicating the nature of their employment. The Standing Orders Ordinance also provides for lay-off for workmen due to temporary curtailment of production, failure of plant etc. The lay-off however has to be for a definite and specified period of time.

7.2 West Pakistan Shops & Establishments Ordinance 1969 :

7.2.1 The West Pakistan Shops & Establishments Ordinance 1969, hereinafter referred to as the "Shops Ordinance" regulates the daily and weekly working hours in commercial establishments. This Ordinance would apply to staff employed e.g. in an office in Karachi. It lays down that no adult worker shall be required to work in any establishment in excess of 9 hours a day and 48 hours a week. The period of work of an adult worker has to be so arranged that inclusive of the interval for rest or meal, it shall not spread over more than 10 hours in winter and 11 hours in summer. An adult worker must not be required or permitted to work continuously for more than 6 hours unless he has been allowed an interval for rest or meals for not less than an hour. In case an adult worker is required to work in excess of 9 hours a day and 48 hours a week, he has to be paid overtime wages at double the rate of his

ordinary wages payable to the worker concerned.

7.2.2. The Shops Ordinance further lays down that every worker shall be given annual/privilege leave with full wages for a period of 14 days after continuous employment for a period of 12 months. If the workman does not avail of the privilege leave in any particular year, the leave not availed by him has to be added to the leave for the succeeding period of 12 months. Total period of accumulation of leave is 30 days. The workman has the option to encash the privilege leave not availed by him.

7.2.3. 10 days casual leave has to be given to the worker with full wages in a calendar year. Casual leave ordinarily is not to be granted for more than 3 days at a time. Casual leave is not accumulable.

7.2.4 A workman is entitled to sick leave with full wages for a total period of 8 days in every year. Sick leave if not availed can be carried forward. Total sick leave accumulable is 16 days at any one time.

7.2.5 In addition to the annual/privilege leave, casual leave and sick leave, the workman is entitled to 10 festival holidays with full wages in a year or as allowed by the appropriate Government.

7.3 Workmen's Compensation Act 1923 :

7.3.1 The Workmen's Compensation Act 1923, hereinafter called the "Compensation Act" provides for the payment of compensation to the workmen for death or injury by accident suffered during the course of employment. The Compensation Act applies however only to those workmen whose salaries do not exceed Rs.1,000/- per month. The Compensation Act lays down a table of compensation which depends upon the nature of the injury and the extent of the disablement caused by the injury. The amount of compensation has to be deposited with the Commissioner under the Compensation Act and the Commissioner then distributes the compensation to the worker or his heirs. The liability of the employer is restricted to the extent of compensation as determined under the Compensation Act; the maximum amount which could be payable is Rs.21,000.

7.4 Provincial Employees Social Security Ordinance 1965 :

The Provincial Employees Social Security Ordinance, 1965, hereinafter referred to as the "Social Security Ordinance" applies only to those classes of establishments, commercial or industrial, as specifically notified by the Government in a Gazette Notification. Unless

therefore the Government notifies a particular company or establishment to be covered under the Social Security Ordinance, no liability attaches to the employer with regard to the Social Security Ordinance. The Social Security Ordinance provides benefits to workmen or their dependents in the event of sickness, maternity, employment injury or death and for matters ancilliary thereto. The companies who are notified under the Social Security Ordinance have to pay a specified contribution to the Institution under the Social Security Ordinance. The Employers contribution (including a special tax for this purpose) does not exceed six (6) percent of the daily wages of the employee.

7.5 Industrial Relations Ordinance 1969 :

7.5.1 The Industrial Relations Ordinance, 1969, hereinafter referred to as the "IRO" deals with the formation of trade unions, the regulation of relations between employer and workmen, the rights and privileges of trade unions, the mode and machinery for raising of industrial disputes, entering into collectively bargained settlements and compulsory adjudication by Labour Court and the procedure and powers of the Labour Courts and the right of appeal against the decisions of the Labour Courts.

7.5.2 The IRO guarantees freedom of association to the workmen. Persons who are employed in managerial and administrative positions or as supervisors or in a supervisory capacity, and other persons concerned with the management and the affairs of the company are excluded from the category of 'workman'. In case of supervisors, in order to place them beyond the mischief of the IRO, their monthly salary should be fixed at more than Rs.800/- per month. It must however be remembered that the designation or the salary is not the sole criterion but more important factors are the nature and essence of the duties and responsibilities of the employees concerned.

7.5.3 It is unfair labour practice for an employer to victimise any workman because of his being a member or office bearer in a trade union. Nor can the employer discriminate between workman and workman on the basis of his belonging to or not belonging to a trade union of workmen. The employer also cannot take part in the formation of a trade union of workmen.

7.5.4 The procedure for raising industrial disputes is as follows :-

a) A registered trade union of workmen certified as Collective Bargaining Agent by the Registrar of Trade Unions can serve a notice under Section 26(1) of IRO raising its charter of demands. The employer has to commence negotiations which can be extended by mutual consent. If settlement is reached, it is duly executed in the prescribed form. If settlement is not reached, the Collective Bargaining Agent of the workmen has to give a 14 days notice of strike. Upon receipt of the notice of strike the Conciliation Officer of the appropriate Government intervenes and commences conciliation proceedings. If no settlement is reached he would suggest arbitration. Employers do not agree to arbitration. In case parties do not agree for arbitration, the Conciliation Officer has to issue a certificate of failure. Thereupon the Union can go on strike and remain on strike for a period of 30 days before the Government would prohibit the strike and refer the matter to the Labour Court for compulsory adjudication. It is however open to the Union not to go on strike at all but itself

refer the matter to the Labour Court for compulsory adjudication of its demands.

7.5.5. Under the Martial Law Regulations strikes and lock-outs are banned.

7.5.6 The court has to adjudicate upon the demands and give its award which is appealable to an Appellate Tribunal which is presided over by an ex-judge of the High Court.

7.5.7 The law and courts in Pakistan attach importance to the sanctity and the finality of collectively bargained settlements. Any demand or dispute raised in breach of a collectively bargained settlement would be illegal.

7.6 Employees old age benefit Act 1976.

7.6.1 The Employees' Old Age Benefit Act 1976 applies to every industry or establishment wherein ten or more persons are employed directly or through any other person. Under this Act all persons employed in the industry or establishment must be insured compulsorily and contribution must be paid every month by the employer to the Institution ("The Employees Old Age Benefits Institution) established under the Employees Old Age Benefits Act in respect of every person in his insurable employment at the rate of five per

cent of his wages.

7.7. Companies Profits (Workers Participation) Act 1968:

7.7.1 Every company in which the number of workers employed at any time during a year is 50 or more or whose paid up capital as on last day of its accounting year is Rs.2,000,000 or more or the value of the fixed assets of the company (at cost) as on the last day of the accounting year is Rs.4,000,000 or more, must establish a Workers Participation Fund as soon as the accounts for the year are finalized but not later than nine months after the close of that year and pay five per cent of its profits during such year into the Fund.

7.8 Employees cost of living (Relief) Act 1973 :

7.8.1 Every employer is liable to pay cost of living allowance to its employees at different rates as enforced from time to time by amendments made in the Employees Cost of Living (Relief) Act 1973. The cost of living allowances now payable are as follows :-

1) Rs. 35/- payable to employees drawing salary upto Rs.700/-, marginal adjustment upto Rs.735/-.

2) Rs. 50/- or 10% of wages, whichever is more payable to employees drawing wages upto Rs.1,000/-, marginal adjustment upto Rs.1,100/-.

3) Rs. 25/- payable to all employees without any wage limit.

4) Rs. 40/- payable to all employees drawing wages upto Rs.1,500/-.

All the above cost of living allowances will be treated as part of wages for all purposes of law including for the purposes of gratuity, provident fund and contributions to Social Security etc.

7.8.2 In addition to the above, a cost of living allowance of Rs.40/- is also payable to all employees drawing wages upto Rs.1,500/-. This cost of living allowance of Rs.40/- will not be treated as wages for any purposes.

7.8.3 Thus the minimum cost of living allowance payable to any employee drawing wages upto Rs.500/- is as follows :-

	Rs. 35/-
	Rs. 50/-
	Rs. 25/-
	Rs. 40/-
	Rs. 40/-
Total	Rs.190/-

11th August, 1983 SURRIDGE & BREECHENO

Illegal business : The illegality of a business, profession or vocation does not exempt its profits from tax ; the Revenue is not concerned with the taint of illegality in the income or its source.

23. Deductions : (1) In computing the income under the head "Income from business or profession", the following allowances and deductions shall be made, namely :—

(*i*) any rent paid for the premises in which such business or profession is carried on ;

(*ii*) any local rate, tax, charge or cess in respect of such premises paid to any local authority or Government, not being any tax payable under this Ordinance ;

(*iii*) any amount paid on account of current repairs to any such premises or any machinery, plant, furniture or fittings used for purposes of business or profession ;

(*iv*) any premium paid in respect of insurance against risk of damage or destruction to any building, machinery, plant, furniture or fittings, or stocks and stores used for the purposes of business or profession ;

(*v*) in respect of depreciation of any such building, machinery, plant, furniture or fittings, being the property of the assessee, the allowance admissible under the Third Schedule ;

(*vi*) in respect of animals which have been used for the purposes of the business or profession (otherwise than as stock-in-trade) and have died or become permanently useless for such purposes, the difference between the original cost to the assessee of the animals and the amount, if any, realised in respect of the carcases or animals ;

(*vii*) any interest paid in respect of capital borrowed for the purposes of the business or profession ;

*[(*vii-aa*) any sum paid to a *modaraba* or to a Participation Term Certificate holder for any funds borrowed for the purposes of the business or profession ;]

**[(*vii-b*) any sum paid or credited to any person maintaining a profit and loss sharing account or deposit with a scheduled bank by way of distribution of profits by the said bank in respect of the said account or deposit ;]

***[(*vii-c*) any sum paid by the House Building Finance Corporation constituted under the House Building Finance Corporation Act, 1952 (XVIII of 1952), to the State Bank of Pakistan (hereinafter referred to as the 'Bank') as the share of the Bank in the profits earned by the said Corporation on its investment in the property made under a scheme of investment in property on partnership in profit and loss, where such investment is provided by the Bank under the House Building Finance Corporation (Issue and Redemption of Certificates) Regulations, 1982 ;]

(*viii*) any sum paid to an employee as bonus or commission for services rendered, where such sum would not have been payable to him as profits or dividend if it had not been paid as bonus or commission :

Provided that the amount of the bonus or commission is of a reasonable amount with reference to—

(*a*) the pay of the employee and the conditions of his service ;

(*b*) the profits of the business or profession for the year in question ; and

(*c*) the general practice in similar business or professions ;

(*ix*) in respect of any special reserve created by such financial institutions and for such purposes as may be approved by the Central Board of Revenue for the purposes of this clause, the amount, not exceeding ten per cent. of the total income including such amount, carried to such reserve ;

Provided that no allowance under this clause shall be made where the aggregate amount standing in such reserve exceeds the paid-up capital of the institution ;

(*x*) in respect of bad debts, such amount (not exceeding the amount actually written-off by the assessee) as may be determined by the Income Tax Officer to be irrecoverable ;

(*xi*) any sum paid to a scientific research institute, polytechnic, college or other institution in Pakistan affiliated to any University or Board of Education established or incorporated by, or under, any Federal or Provincial law, or recognised, aided or run by Government or run by any local authority, to be used for scientific research or technical training in Pakistan related to the class of business carried on by the assessee ;

(*xii*) any expenditure laid out or expended on scientific research in Pakistan related to the business carried on by the assessee ;

(*xiii*) any expenditure laid out or expended on any educational institution or hospital in Pakistan established for the benefit of the employees, their families and dependents ;

(*xiv*) any expenditure laid out or expended on any institute in Pakistan established for the training of industrial workers recognised, aided or run by Government or run by any local authority ;

(*xv*) any expenditure laid out or expended on the training of any person, being a citizen of Pakistan, in connection with a scheme approved by the Central Board of Revenue for the purposes of this clause ;

(*xvi*) any sums paid on account of annual membership subscription to a registered trade organization within the meaning of the Trade Organizations Ordinance, 1961 (XLV of 1961) ;

(*xvii*) any expenditure incurred by an assessee wholly and exclusively in connection with his visit abroad as a member of a trade delegation sponsored by the Federal Government ;

(*xviii*) any expenditure (not being in the nature of capital expenditure or personal expenses of the assessee) laid out or expended wholly and exclusively for the purpose of such business or profession ****[:]

*****[Provided that, where a domestic company has, in any income year, incurred any expenditure on advertisement or publicity outside Pakistan in respect of such goods as may be specified by the Federal Government by notification in the official Gazette and as are exported in the said income year, or on furnishing of samples of such goods to a person outside Pakistan, deduction in respect of the said expenditure allowable under this clause shall be of a sum equal to one and one-third times the amount of actual expenditure so incurred.]

Explanation : (*a*) the expression "any expenditure", as used in clauses (*xii*), (*xiii*) and (*xiv*), includes expenditure in the nature of capital expenditure ; and

(*b*) the expression "paid", as used in this section and Sections 18, ******[ ], 24 and 31, means actually paid or incurred according to the method of accounting upon the basis of which the income is computed.

(2) Where any such premises, building, machinery, plant, furniture or fittings is or are not wholly used for the purposes of the business or profession, any allowance or deduction admissible under this section shall be restricted to the fair proportional part of the amount which would be allowable if such premises, building, machinery, plant, furniture or fittings were wholly so used.

Leg. Amendments :

*Clause (*vii-aa*) ins. by the Finance Ordinance, XXV of 1980.

**Clause (*vii-b*) ins. by the Finance Ordinance, XXIV of 1981.

***Clause (*vii-c*) ins. by the Finance Ordinance, XII of 1982.

****Subs. for a full-stop by the Finance Ordinance, XXIV of 1981.

*****Proviso added, *ibid.* (w.e.f. assessment year 1982-83).

******The figure "20", omitted by the Finance Ordinance, XXV of 1980.

COMMENTS

General principles : This section expressly provides for certain allowance. Before dealing with the express allowances, it will be convenient to note certain general principles regarding allowances and deductions permissible in computing business profits.

An item of loss incidental to business may be deducted in computing "profits and gains" even if it does not fall within any of the clauses of this section, for the tax is on "profits and gains" properly so called and computed on ordinary commercial principles.[1] This is definitely established by the Privy Council case, *C. I. T.* v. *Chitnavis*,[2] where a

1. Bansidhar Onkarmal v. C. I. T. ; 1949 I. T. R. 247, 256.

2. 59 I. A. 280, 297, 6 I. T. C. 453

24. Deductions not admissible : Nothing contained in Section 23 shall be so construed as to authorise the allowance or deduction of—

(*a*) any sum paid on account of any cess, rate or tax levied on the profits or gains of any business or profession or assessed as a percentage, or otherwise on the basis of any such profits or gains ;

(*b*) any sum paid to a non-resident on account of interest, brokerage or commission or any other sum chargeable under the provisions of this Ordinance, unless tax thereon has been paid or deducted and paid under Section 50, as the case may be ;

(*c*) any sum paid to any person which is chargeable under the head "Salary", unless tax thereon has been paid or deducted and paid under Section 50, as the case may be ;

(*d*) any sum paid, on account of interest, brokerage, commission, salary, or other remuneration, by a firm or an association of persons to any partner of the firm or any member of the association of persons, as the case may be ;

(*e*) any expenditure in the nature of head office expenditure, in the case of an assessee, being a non-resident, in excess of such limits as may be prescribed.

Explanation : As used in this clause, "head office expenditure" means executive and general administration expenditure incurred by the assessee outside Pakistan for the purposes of the business or profession, including expenditure incurred in respect of—

(*a*) any rent, local rates and taxes (excluding any foreign tax corresponding to any tax leviable under this Ordinance), current repairs or insurance against risks of damage or destruction of any premises outside Pakistan used for the purposes of the business or profession ;

(*b*) any salary paid to an employee employed by the head office outside Pakistan for the purposes of thebusiness or profession ;

(*c*) any travelling by such employee for the purposes of business or profession ; and

(*d*) such other matters connected with executive and general administration as may be prescribed ;

(*f*) any allowance in respect of expenditure on entertainment in excess of such limits and in contravention of such conditions as may be prescribed ;

(*g*) any sum paid to any provident fund, superannuation fund or gratuity fund, not being a recognised provident fund, an approved superannuation fund or an approved gratuity fund ;

(*h*) any sum paid to any provident fund or other fund established for the benefit of employees of the assessee, unless the assessee has made effective arrangements to secure that tax shall be deducted

at source from any payments made from the fund which are chargeable to tax under the head "Salary" ; or

(*i*) any expenditure incurred by an assessee on the provision of perquisites *[, allowances] or other benefits to any employee, in excess of **[fifty] per cent. of his salary excluding perquisites ***[, allowances or other benefits] :

Provided that in the case of an employee whose contract of service has been approved under clause (7) of the Second Schedule, this clause shall not apply for a period of five years commencing next after the expiration of three years from the date of his arrival in Pakistan.

Explanation : As used in this clause—

(*i*) "salary" means remuneration or compensation for services rendered, paid, or to be paid, at regular intervals, and includes dearness or cost of living allowance and bonus or commission payable to an employee in accordance with the terms of his employment as remuneration or compensation for services but does not include the employer's contribution to a recognised provident fund or an approved superannuation or gratuity fund or any other sum which does not enter into the computation for pensionary or retirement benefits ;

(*ii*) "perquisite", "employee" and "employer" have the same meaning as in sub-section (2) of Section 16 ; and

(*iii*) "other benefits" does not include employer's contribution to a recognised provident fund or an approved superannuation or gratuity fund.

Leg. Amendment :

*Ins. by the Finance Ordinance, XXV of 1980.

**Subs. *ibid.*, for "thirty" (w.e.f. the assessment year 1981-82).

***Ins. *ibid.*

COMMENTS

Deduction of Head Office expenditure in the case of non-residents : (1) In the case of an assessee, being a non-resident, no allowance shall be made, in computing the income chargeable under the head "Income from business or profession" in respect of so much of the expenditure in the nature of Head Office expenditure referred to in clause (*a*) of Section 24 as is in excess of the amount computed as hereunder, namely :—

(*a*) an amount equal to the average Head Office expenditure ; or

(*b*) the amount of so much of the expenditure in the nature of Head Office expenditure incurred by the assessee as is attributable to the business or profession of the assessee in Pakistan, whichever is lower.

(2) For the purpose of sub-rule (1) "average Head Office expenditure" means,—

(*a*) in a case where any expenditure in the nature of Head Office expenditure has been allowed as a deduction in computing the income of the assessee chargeable under the head "Income from business or profession" in respect of the income years relevant to each of the three assessment years immediately preceding the relevant assessment year, one-third of the aggregate amount of the expenditure so allowed ; and

THE THIRD SCHEDULE

(See Section 23)

RULES FOR THE COMPUTATION OF DEPRECIATION ALLOWANCE

1. **Allowances for depreciation :** (1) Where, in any income-year, any building, machinery, plant or furniture owned by an assessee is used for purposes of any business or profession carried on by him, an allowance for depreciation shall be made in computing the profits and gains of such business or profession in the manner hereinafter provided.

(2) Where any such building, machinery, plant or furniture is not wholly used for the purposes of the business or profession, the allowance under sub-rule (1) shall be restricted to the fair proportional part of the amount which would be admissible if such building, machinery, plant or furniture were wholly so used.

(3) No allowance under this rule shall be made unless—

(*a*) [1][at the time of filing a return of total income] such particulars as may be prescribed and such further information or documents as the Income Tax Officer may require, are furnished ; and

(*b*) such building, machinery, plant or furniture has been so used [2][.. ... ...] during the income year.

2. **Rates of depreciation allowance :** (1) The allowance under rule 1 shall be computed at the rates specified in the Table annexed hereto :—

TABLE

Class of asset	Description	Rate per cent. of the written down value
1	2	3
	BUILDING	
I.	Building (not otherwise specified) ...	5 (general rate)
II.	Factory or workshop (excluding godowns [3][and Offices]	10
[4][II-A.	Residential quarters for labour ...	10]
	FURNITURE	
III.	Furniture —	10
	MACHINERY AND PLANT	
IV.	Machinery and plant (not otherwise specified) —	10 (general rate)
[5][IV-A.	Technical or professional books —	20]

1. Subs. for certain words by the Finance Ordinance, XXIV of 1981.
2. Omitted by the Finance Ordinance, XXV of 1980.
3. Subs. by the Finance Ordinance, XXV of 1980 (w.e.f. assessment year 1981-82).
4. Ins. by the Finance Ordinance, XXV of 1980 (w.e.f. assessment year 1981-82).
5. Ins. by the Finance Ordinance, XXV of 1980 (w.e.f. assessment year 1981-82).

1	2		3
V.	Ships—		
	(*i*) New	—	5
	(*ii*) Second hand	—	
	Age at the time of purchase :		
	(*a*) not more than ten years	—	10
	(*b*) more than ten years	—	20
VI.	Batteries, X-Ray and electrotherapeutic apparatus and accessories	—	20
VII.	Machinery used in the production and exhibition of cinematograph films	—	20
VIII.	Motor-vehicles, all sorts	—	20
IX.	Aircraft, aeroengines and aerial photographic apparatus	—	30
X.	Moulds used in the manufacture of glass or concrete pipes	—	30
XI.	Below ground installations in mineral oil concerns		100

(2) The Central Board of Revenue may, from time to time, make, by notification in the official Gazette, any amendment in the Table annexed to sub-rule (1) modifying or deleting any entry or adding any new entry.

(3) Notwithstanding anything contained in sub-rule (1) or rule 3, in the case of any assessee or any class of assessees or any asset or class of assets, the Central Board of Revenue may, by notification in the official Gazette, direct that depreciation allowance shall be allowed at such rate or rates and in such manner as may be specified.

3. Extra depreciation allowance for multiple shift working : (1) In the case of machinery and plant, to which the general rate applies, an extra depreciation allowance, equal to fifty per cent. of the allowance computed under sub-rule (1) of rule 2 shall be allowed on account of double shift working and hundred per cent. of such allowance on account of triple shift working.

(2) The extra depreciation allowance under sub-rule (1) shall be proportionate to the number of days during which the double or triple shifts are worked, and, for the purpose of computing this allowance, the normal working days throughout the year shall be taken as three hundred.

(3) The provisions of sub-rules (2) and (3) of rule 1 shall, so far as may be, apply to this rule as they apply to the said rule.

4. Depreciation not to be allowed in cases where the cost of renewal or replacement is allowed : (1) Notwithstanding anything contained in this Ordinance, no allowance under rule 1 or rule 3 shall be made in the case of any asset falling under the description "Machinery and Plant" the normal useful life of which does not exceed one year ; but the cost of renewal or replacement thereof shall be allowed as a revenue expenditure

5. **Initial depreciation :** (1) Where any building has been newly erected, or any machinery or plant has been installed, in Pakistan at any time between the first day of July, 1976 and the thirtieth day of June, [1983] (both dates inclusive), further depreciation allowance in respect of the year of erection or installation of year in which such building, machinery or plant is used by the assessee for the first time for the purposes of

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1 Subs. for "1980" by the Finance Ordinance, XXV of 1980.

his business or profession for the year in which commercial production is commenced, whichever is the later, shall be allowed at the following rates, namely :—

	Rates
(*a*) in the case of residential building for industrial labour the erection of which is begun and completed between the first day of July, 1979 and the thirtieth day of June, [1][1983] (both dates inclusive)	Twenty-five per cent. of the written down value.
Explanation : The expression "residential building for industrial labour" means building constructed for use as dwelling houses by workmen and other persons, employed on monthly wages not exceeding one thousand rupees in an industrial undertaking which fulfils the conditions specified in clauses (*a*), (*d*) and (*e*) of sub-section (2) of Section 48 or any other industrial undertaking which is approved by the Central Board of Revenue for the purposes of this rule.	
(*b*) in the case of other building —	Ten per cent. of the written down value.
(*c*) in the case of machinery or plant (other than ships or motor vehicles not plying for hire).	Twenty-five per cent. of the written down value [2][and in the case of an industrial undertaking commencing commercial production on or after the first day of July, 1981, forty per cent. of the written down value].
[3][(*cc*) in the case of machinery or plant (other than ships or motor vehicles not plying for hire), given on lease by the assessee, being a scheduled bank or a financial institution, on or after the first day of July, 1982.]	Forty per cent. of the written down value.
[4][*Explanation :* As used in this clause, "industrial undertaking" has the same meaning as in the First Schedule.]	
(*d*) in the case of ships whose port of registry is in Pakistan.	Thirty per cent. of the written down value.

(2) Nothing contained in sub-rule (1) shall apply in the case of—

(*a*) any road transport vehicle not plying for hire ; and

(*b*) any machinery or plant which has previously been used in Pakistan.

[5][(3) The provisions of sub-rules (2) and (3) of rule 1 shall, so far as may be, apply to this rule as they apply to the said rule.]

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1. Subs. for "1980" by the Finance Ordinance, XXV of 1980.
2. Ins. by the Finance Ordinance, XXIV of 1981.
3. Clause (*cc*) ins. by the Finance Ordinance, XII of 1982.
4. Explanation ins. by the Finance Ordinance, XXIV of 1981.
5. Sub-rule (3) was deemed to have been amended by S.R.O. 885(I)/79, dated 2-10-1979 for assessment year 1979-80.

6. Limitation as to allowance for depreciation : The aggregate of the allowance for depreciation allowed under this Ordinance and the repealed Act shall not exceed the original cost of any asset or class of assets, as the case may be.

7. Disposal of assets and treatment of resultant gains or losses : Notwithstanding anything contained in this Ordinance or the repealed Act, where, in any income year,—

(*a*) any asset or class of assets is disposed of by an assessee no allowance under rules 1, 3, 4 or 5 shall be made in respect thereof in that year ;

(*b*) any class of assets is disposed of by an assessee,—

(*i*) if the sale proceeds thereof exceed the written down value, the excess shall be deemed to be the income of the assessee of that year chargeable under the head "Income from business or professions", and

(*ii*) if the sale proceeds are less than the written down value, the deficit shall be deemed to be an expenditure deductible from the profits and gains of the business or profession of that year ; and

(*c*) any asset (but not all assets) included in a class of assets is disposed of by an assessee, the written down value of the said class of assets shall be reduced by the sale proceeds thereof, and where the said sale proceeds exceed the said written down value, no further allowances for depreciation shall be made in respect thereof and the excess shall be deemed to be income chargeable under the head "Income from business or profession" of the year in which the disposal takes place,

and the business or profession of, the purposes for which the said class of assets or asset, as the case may be, was used before its disposal, shall be deemed to be carried on by the assessee during that year and all the provisions of this Ordinance shall apply accordingly.

8. Definitions : For the purpose of this Schedule,—

(1) "class of assets" means the class of assets specified in column 1 of the Table annexed to sub-rule (1) of rule 2, and includes all additions made to any asset falling under that class ;

(2) "fair market value" has the same meaning as in sub-section (3) of Section 29 ;

(3) "furniture" includes fittings ;

(4) "plant" means any ship, aircraft or vehicle registered in Pakistan and includes books (other than books in respect of which an allowance has been made under Section 42 of this Ordinance or Section 15-F of the repealed Act), scientific apparatus and surgical equipment used for the purposes of business or profession ;

(5) "sale proceeds" means—

(*a*) where the asset is actually sold, the sale price thereof or the fair market value, whichever is the higher ;

(*b*) where the asset is transferred by way of exchange, the fair market value of the asset acquired through such transfer ;

(*c*) where the asset is transferred otherwise than by sale or exchange, the consideration for such transfer ;

(*d*) where an asset is discarded, demolished, destroyed or lost, the scrap value, or the amount realised by the disposal thereof together with any insurance, compensation or salvage money received or receivable in respect thereof ;

(*e*) where the asset is compulsorily acquired under any law for the time being in force in Pakistan, the compensation paid therefor ;

(*f*) where the asset ceases to be used by the assessee for purposes of his business or profession, the fair market value thereof at the time of such cessation ; [1][ ]

(*g*) where the asset [2][, other than an asset to which sub-clause (*h*) or sub-clause (*i*) [3][or sub-clause (*j*)] applies, is exported or transferred outside Pakistan, the original cost thereof, or the fair market value at the time of export, whichever is the higher ;

[4][(*h*) where an asset, after having been used in Pakistan in the execution of a contract entered into by the assessee before the first day of July, 1979, is exported or transferred outside Pakistan, the original cost thereof less all depreciation allowed excepting the sum allowed in pursuance of rule 5 [5][...] ;

(*i*) where an asset [6][not being an asset to which sub-clause (*j*) applies], after having been used in Pakistan in the execution of a contract entered into by the assessee on or after the first day of July, 1979, is exported or transferred outside Pakistan the original cost thereof [7][. . . .] [8][; and]

[9][(*j*) where an asset, after having been used in Pakistan in the execution of a contract for exploration and production of petroleum (such contract having been entered into by the assessee on or after the first day of July, 1981), is exported or transferred outside Pakistan, the original cost thereof less all depreciation allowed excepting the sum allowed in pursuance of rule 5,]

and in each such case, the asset shall, for purposes of rule 7, be deemed to have been disposed of by the assessee [10][:]

[11][Provided that in the case of a building the term "sale proceeds" shall mean an amount equal to the lower of the following, namely : –

(*a*) original cost, and

(*b*) sale price or fair market value, whichever is higher :

Provided further that, where the actual cost of a road transport vehicle is, in accordance with sub-clause (*a*) of clause (8), taken to be [12][one hundred and fifty thousand] rupees, the sale proceeds thereof shall be taken to be a sum which bears to the amount for which the said vehicle is sold together with any insurance, salvage or compensation money received or receivable, or, as the case may be, scrap value in respect thereof the

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1. The word "and" omitted by the Finance Ordinance, XXV of 1980.
2. Ins., *ibid*. (w.e.f. assessment year 1980-81).
3. Ins. by the Finance Ordinance, XXIV of 1981.
4. Sub-clauses (*h*) and (*i*) ins. by the Finance Ordinance, XXV of 1980.
5. The word "and" omitted by the Finance Ordinance, XXIV of 1981.
6. Ins. by the Finance Ordinance, XXIV of 1981.
7. The words "less all depreciation allowed" omitted by the Finance Ordinance, XXIV of 1981. These words were earlier deemed to have been omitted by S.R.O. 923 (1)/80, dated 14-9-1980 for assessment year 1980-81.
8. Subs. for a comma, *ibid*
9. Sub-clause (*j*) ins. by the Finance Ordinance, XXIV of 1981
10. Subs. for a semi-colon by the Finance Ordinance XXV of 1980.
11. Provisos and Explanation added by the Finance Ordinance, XXV of 1980. Certain provisos and Explanation were earlier deemed to have been inserted by S.R.O. 885 (1)/79, dated 2-10-79, and S.R.O. 175 (1)/80, dated 10-2-80, for the assessment year 1979-80
12. Subs. for "one hundred thousand" by the Finance Ordinance, XXIV of 1981 (w.e.f. assessment year 1982-83).

same proportion as the said sum of [1][one hundred and fifty thousand] rupees bears to the actual cost of the said vehicle to the assessee had the said sub-clause, not been applicable to such vehicle.

Explanation: The expression 'sold', as used in the second proviso, includes a transfer by way of exchange or otherwise or a compulsory acquisition under any law for the time being in force].

(6) "ship" includes a steamer, motor vessel, sail tug, boat, iron or steel float for cargo, wooden cargo boat, motor launch and speed boat ;

(7) "written down value," means—

[2][*a*) in the case of a ship or any asset to which sub-rule (3) of rule 2 applies,—

(*i*) for purpose of rule 7, as in sub-clause (*b*), and

(*ii*) for any other purpose, the actual cost thereof to the assessee ; and],

(*b*) in the case of other assets [3][, or class of assets]—

(*i*) where the asset [4][or class of assets] was acquired in the income year, the actual cost thereof to the assessee ; and

(*ii*) where the asset [5][, or class of assets,] was acquired before the income year, the actual cost thereof to the assessee as reduced by the aggregate of the allowance for depreciation allowed to him under this Ordinance or the repealed Act in respect of the assessment for earlier years.

(8) For the purposes of [6][clause (7)],—

(*a*) in the case of road transport vehicles [7][, being passenger transport vehicle], not plying for hire, the actual cost to the assessee shall be deemed not to exceed [8][one hundred and fifty thousand] rupees ;

(*b*) in computing the actual cost of an asset, the amount of any grant, subsidy, rebate or commission and the value of any assistance (not being in the nature of any loan repayable with or without interest) received by an assessee from Government or any other authority or person and any deduction or allowance admissible under this Ordinance or the repealed Act shall be excluded ;

(*c*) where, before the date of acquisition by the assessee, any such asset had at any time been used by any person for the purposes of his business or profession, the actual cost to the assessee shall, except in any case where sub-clause (*d*) applies, be deemed not to exceed the fair market value thereof ;

(*d*) where any assessee has succeeded another person in business or profession, the written down value of an asset shall be computed as if no succession had taken place ;

(*e*) where an assessee has acquired any plant or machinery (hereafter referred to as 'asset') from a country outside Pakistan for installation in Pakistan for the

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1. Subs. or "one hundred thousand" by the Finance Ordinance, XXIV of 1981 (w.e.f. assessment year 1982-83).
2. Sub-clause (*a*) subs. by the Finance Ordinance, XXIV of 1981 (w.e.f. assessment year 1982-83) which was earlier amended by the Finance Ordinance, XXV of 1980. The sub-clause was deemed to be substituted by S.R.O. 923 (1)/80, dated 14-9-80.
3. Ins. by the Finance Ordinance, XXV of 1980.
4. Ins., *ibid.*
5. Ins., *ibid.*
6. Sub. for "sub-rule (7)" by the Finance Ordinance, XXIV of 1981.
7. Ins., *ibid.*
8. Subs., for "one hundred thousand" *ibid* (w.e.f. assessment year 1982-83).

purposes of his business or profession and, in consequence of a change in the rate of exchange at any time after the acquisition of such asset and before full and final repayment of any foreign loan, there is an increase or reduction in the liability of the assessee as expressed in Pakistan currency for making payment towards the whole or a part of the moneys borrowed by him from any person directly or indirectly, in any foreign currency specifically for the purposes of acquiring the asset (being in either case the liability existing immediately before the date on which change in the rate of exchange takes effect), the amount by which the liability aforesaid is so increased or reduced during the income year shall be added to, or, as the case may be, deducted from the actual cost of the asset and the amount arrived at after such addition or deduction shall be taken to be the actual cost of the asset ;

(*f*) where the whole or any part of the liability aforesaid is met, not by the assessee, but, directly or indirectly, by any other person or authority, the liability so met shall not be taken into account for the purposes of sub-clause (*e*) ;

(*g*) where the assessee has entered into a contract with an authorised dealer for providing him with a specified sum in a foreign currency on or after a stipulated future date at the rate of exchange specified in the contract to enable him to meet the whole or any part of the liability aforesaid, the amount, if any, to be added to, or deducted from the actual cost of the asset or the amount of expenditure of a capital nature or, as the case may be, the cost of acquisition of the capital asset under this sub-clause shall, in respect of so much of the sum specified in the contract as is available for discharging the liability aforesaid, be computed with reference to the rate of exchange specified therein ; and

(*h*) for the purposes of making an assessment for the year beginning on the first day of July, 1979, the written down value of such asset shall be increased or reduced by the amount by which the liability aforesaid was so increased or reduced during any income year for the assessment year beginning on the first day of July, 1975, the first day of July, 1976, the first day of July, 1977 or the first day of July, 1978.

Explanation : As used in this clause,—

(*a*) "rate of exchange" means the rate of exchange determined or recognised by the Federal Government for the conversion of Pakistan currency into foreign currency or foreign currency into Pakistan currency ; and

(*b*) "authorised dealer", "foreign currency" and "Pakistan currency" have the same meaning as in the Foreign Exchange Regulation Act, 1947 (VII of 1947).

(9) The provisions of clauses (5) and (7) shall, so far as may be, apply to a class of assets as they apply to an asset.

(3) Scrap and used material, equipment and specialized vehicles for oil drilling, imported into Pakistan at the co rate of three per cent may be sold after five years of such import by the Pakistan Oilfields Limited in Pakista 189 the permission of the Federal Government and on payment of import duty chargeable thereon at the time of the sale on the value based on the actual sale price, that is, total sale price less any amount included therein representing import duty already paid.

C.No.1(81)-SS(CB)/76.]

Z. A. SHAH
Joint Secretary

GOVERNMENT OF PAKISTAN

MINISTRY OF FINANCE, PLANNING AND DEVELOPMENT

NOTIFICATION

Islamabad, the 4th August, 1977

CUSTOMS

S.R.O. 695(I)/77. – In exercise of the powers conferred by section 19 of the Customs Act, 1969 (IV of 1969), and in supersession of this Ministry's Notification No. S.R.O. 372(I)/72, dated the 8th June, 1972, the Federal Government is pleased to direct that rticles falling within the heading numbers of the First Schedule to the said Act, specified in the table below, which are machinery or rticles for use with machinery or as component parts or spare parts of machinery as defined herein, shall be exempt from so much of he Customs-duties leviable thereon as are in excess of 40% *ad valorem*.

Provided that articles are identifiable as intended for use only with machinery and in the case of imports, have been imported or the Projects approved by the Government for initial installation or for balancing, modernization, replacement or extension of the existing units.

Definition of Machinery:

(i) Machinery, operated by power of any description, such as is used in any industrial process, including the generation, transmission and distribution of power, or used in process directly connected with the extraction of minerals and timber, construction of buildings roads, dams, bridges and similar structures and the manufacture of goods.

(ii) Apparatus and appliances, including metering and testing apparatus and appliances specially adapted for use in conjunction with machinery specified in item (i) above.

(iii) Mechanical and electrical control and transmission gear adapted for use in conjunction with machinery specified in item (i) above.

(iv) Component parts, including spare parts of machinery as specified in items (i), (ii) and (iii) above, identifiable as for use in or with such machinery.

TABLE

Heading numbers and sub-heads in the First Schedule to the Customs Act, 1969 (IV of 1969)

Sub-head "B" of 36.05;

Sub-head "A" of 40.09, sub head "D" of 40.10, sub-head "C01(b)" of 40.14 (excluding aprons and cots);

42.04, sub-head "A" of 42.06;

Sub-head "B01" of 44.13;

Sub-heads "A01" and "B01" of 45.04;

48.08, sub-head "C03" of 48.15, 48.20, sub-heads "E01" and "E02" of 48.21;

Sub-heads "B" and "C" of 59.08, 59.15, 59.16, 59.17;

Sub-heads "A02", "C", "D" and "E" of 68.04, 68.07, sub-heads "D" and "E04" of 68.13, sub-head "D" of 68.14;

69.01, 69.02, 69.03, 69.09;

Sub-head "B01" of 70.20;

73.17, 73.18, 73.19, 73.20, sub-head "A" of 73.21, sub-head "A" of 73.22, sub-head "B" of 73.25, sub-head "B01" of 73.27, 73.29, sub-head "G01" of 73.31, sub-head "D02" of 73.32, sub-head "D01" of 73.34, sub-head "B04" of 73.35, sub-head "D03" and "D09(b)" of 73.40;

74.07, 74.08, sub-head "B" of 74.10, sub-head "B01" of 74.11, 74.15, 74.16, sub-head "B01" of 74.19;

Sub-head "A" of 75.04, 75.05, sub-head "A" of 75.06;

Sub-head "A" of 76.06, sub-head "A" of 76.07, 76.08 (excluding prefabricated buildings and their assembled panels and parts) sub-head "A" of 76.09, 76.11, sub-head "A" of 76.12, sub-head "G01" of 76.16;

77.02 (other articles of magnesium only);

Sub-head "A" of 78.05, sub-head "C01" of 78.06;

Sub-head "A" of 79.04, sub-head "C01" of 79.06;

Sub-head "A" of 80.05, sub-head "A" of 80.06;

82.02, 82.03, 82.04, sub-head "B01" of 82.05, sub-head "A" of 82.06, 82.07, sub-head "B02" of 83.08;

84.01 (excluding boilers of 12 tons or less per hour steam evaporation capacity, except those imported as integral part of plant and machinery for installation in under-developed areas), 84.02, 84,03, 84.05, sub-heads "F02" and "G03" of 84.06, 84.07, sub-heads "A02", "F02", "C02", "D03", "E02" and "F03" of 84.08, 84.09, sub-heads "B", "C02", "D", "E02(d)" and "F" of 84.10, sub-heads "A07", "A08", "B", "C" and "D" of 84.11, sub-head "B02" of 84.12 (air-conditioning plants of more than 10 horse power only), 84.13, sub-head "A" of 84.14, sub-heads "C" and "D" of 84.15 (cold storage, ice and ice cream making plants only), 84.16, sub-head "B" of 84.17, sub-heads "A01", "A03", "B02" and "C" of 84.18, sub-heads "B" and "C" of 84.19, sub-heads "A01" and "B02" of 84.20, sub-heads "C", "D" and "E" of 84.21, sub-heads "A", "B", "C", "F" and "G" of 84.22, 84.23 (excluding mining machinery and component parts thereof; petroleum and gas well drilling equipment and component parts thereof), 84.26, 84.27, 84.29, 84.30 (excluding sugar manufacturing and refining machinery), 84.31, 84.32, 84.33, 84.34, (excluding printing type), 84.35, sub-heads "A", "B02", "C01" and "C04" of 84.36, 84.37 (excluding looms below 130 cm in width except shuttleless looms all sorts), sub-heads "A05", "B", "C04" and "C05" of 84.38, 84.39, 84.40 (excluding washing and drying machines requiring for their operation less than one horse power), sub-heads "A03" and "B" of 84.41, sub-head "B" of 84.42, 84.44 (excluding cast iron roll of 90 cm or less in diameter), sub-heads "A", "B", "C03", "E01", "F02", "G", "H01", "I01(b)", "I01(c)", "I02(a)", "I03(a)", "I03(c)", "I04", "I05", "J02", "K", "L", "M01(a)", "M02", "N01(b)", "N02" to "N11" of 84.45, 84.46, 84.47, 84.48, 84.49, 84.50, 84.56, 84.57, 84.59 (excluding oil crushing and refining machinery and component parts thereof), 84.60, sub-head "C" of 84.61, sub-head "B05" of 84.63, sub-heads "E" and "F" of 84.64, 84.65;

Sub-heads "A01", "B", "E", "F", "G02", "H01", "H02(b)", "I", "J02" and "K" of 85.01, 85.02, 85.04 (excluding accumulators for miners' safety lamps and covers and containers for such accumulators), 85.05, sub-head "B02" of 85.08, 85.11 (excluding electric welding machines of a capacity not exceeding 300 amps), sub-heads "A" and "G" of 85.12, 85.18, sub-heads "A01(b)", "A02(b)", "A03" and "A04" of 85.19, 85.21, 85.22, sub-heads "A02(b)" and "B" of 85.23, sub-head "C02" of 85.24, sub-heads "A" and "C" of 85.26, sub-head "A" of 85.27, 85.28;

Sub-heads "A01" and "C" of 90.07, sub-heads "B" and "C" of 90.08, 90.09, 90.10, 90.26;

91.06;

Sub-head "G01" of 96.01;

"98.07"

[As amended]

AFTAB AHMED
Additional Secretary

GOVERNMENT OF PAKISTAN

MINISTRY OF FINANCE, PLANNING AND DEVELOPMENT

NOTIFICATION

Islamabad, the 28th June, 1979

CUSTOMS

S.R.O. 540(I)/79. – In exercise of the powers conferred by section 19 of the Customs Act, 1969 (IV of 1969), and sub-s (i) of section 7 of the Sales Tax Act, 1951 (III of 1951), the Federal Government is pleased to direct that articles import exclusive use of the Pakistan Telegraphs and Telephone Department or the Special Communication Organisation shall, on and fro 28th day of June, 1979, be exempt from so much of the Customs-duties chargeable thereon as are in excess of 40% *ad valorem* a whole of the sales tax leviable thereon, subject to the condition that they are specially ordered by the Director-General, Telegra Telephone, or as the case may be, by the Director-General, Special Communication Organisation.

H. N. AKHTAR
Additional Secretary

GOVERNMENT OF PAKISTAN

MINISTRY OF FINANCE, PLANNING AND DEVELOPMENT

NOTIFICATION

Islamabad, the 28th June, 1979

CUSTOMS

S.R.O. 541(I)/79. – In exercise of the powers conferred by section 19 of the Customs Act, 1969 (IV of 1969), the Fe Government is pleased to exempt, on and from the 28th day of June, 1979, the spares for plant and machinery imported by air industrial unit from so much of the Customs-duty chargeable thereon as is relatable to freight in excess of 20% of the FOB

H. N. AKHTAR
Additional Secretary

GOVERNMENT OF PAKISTAN

MINISTRY OF FINANCE AND ECONOMIC COORDINATION

NOTIFICATION

Islamabad, the 26th June, 1980

CUSTOMS

S.R.O. 700(I)/80. – In exercise of the powers conferred by section 19 of the Customs Act, 1969 (IV of 1969), and in s session of this Ministry's Notification No. S.R.O. 1481(I)/74, dated the 4th December, 1974, the Federal Government is pleased to that the plant and machinery imported for initial installation or for balancing, modernization, replacement or extension of the pr approved by the Government for the areas specified in column (2) of the table below shall be exempt from the Customs-duties le thereon under the First Schedule to the said Act, to the extent specified in the corresponding entries of column (3) of the subject to the following conditions, namely:-

(1) The plant and machinery shall be those as defined in the Ministry of Finance Notification No. S.R.O. 695(I)/77, date 4th August, 1977.

(2) The importer shall, at the time of importation, by documents in his possession, satisfy the Collector of Customs tha machinery has been imported for projects located in areas specified in the Table and shall furnish an indemnity bo the form attached herewith to the extent of Customs-duties exempted under this notification. The said indemnity bon be discharged subsequently on production of a certificate from the Director or Additional Director of Industries c Provincial Government concerned, the Secretary, Kashmir Affairs Division, or an officer authorised by him in this beh the Resident and Commissioner for Northern Areas, as the case may be, to the effect that the machinery as declared t Customs has been imported for an approved project for initial installation or for balancing, modernization, replaceme extension of the existing unit and has been duly installed in an area specified in the Table and such other evidence Collector of Customs may require and after such enquiry as he deems fit, in order to establish such installation.

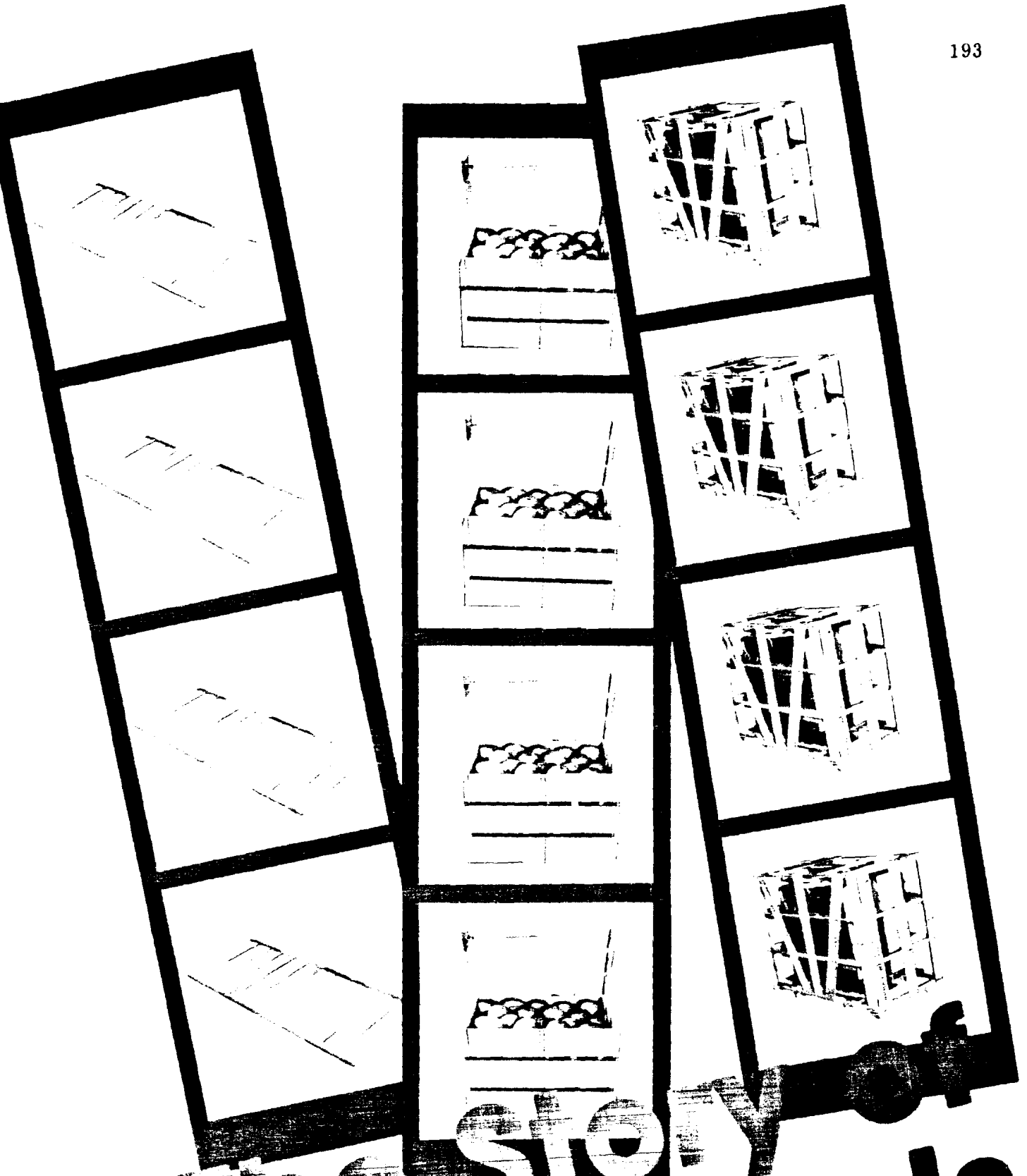
(3) The importer shall, at the time of importation of machinery, furnish a bond to abide by the conditions laid down in notification failing which he would pay the amount of Customs-duties due and make payment of any other penalties u may be imposed by the Collector of Customs in this behalf.

(4) The certificate of installation referred to in sub-paragraph (2) shall be submitted to the Collector of Customs not later th two years or such further extended period as the Collector may allow from the date of importation of such machine

(5) If the plant and machinery is removed to an area other than those for which they have been imported within a period of t years from the date of installation, the amount of Customs-duties which have not been paid and such other penalties as h been adjudged by Customs authorities shall be recovered under section 202 of the Customs Act, 1969 (IV of 1969).

TABLE

S. No.	Areas	Extent of exemption
1	2	3
1.	Province of Baluchistan; Malakand and Dera Ismail Khan Divisions, Tribal Areas, Districts of Mansehra and Kohistan and all Government financed industrial estates located in the Province of North West Frontier; Northern areas administered by Resident and Commissioner; Azad Kashmir. All Government-financed industrial estates in the Districts of Dera Ghazi Khan, Mianwali and Tehsil of Khushab in the Province of Punjab; and All Government-financed industrial estates in the Districts of Shikarpur, Jackobabad and Dadu, excluding Kotri, in the Province of Sind.	The whole of the duty leviable thereon.
2.	All Government-financed industrial estates located in the areas other than those excluded at S. No. 3(a) below.	75% of the duty leviable thereon.
3.	(a) The whole of Pakistan, excluding: 1. Tehsil of Rahimyarkhan; 2. Tehsil of Multan; 3. Tehsil of Faisalabad; 4. Tehsil of Ferozwalla; 5. Teshsil of Lahore; 6. Tehsil of Gujranwala; 7. Tehsil of Rawalpindi; 8. Tehsil of Sialkot; 9. Islamabad Capital Territory; 10. Karachi; 11. Taluka of Hyderabad; 12. Taluka of Kotri, 13. Taluka of Sukkur; and 14. Such areas adjoining Karachi.	50% of the duty leviable thereon.



The story of Wirebounds

For Agricultural And Industrial Products

Stapling Machines Co., the originator and developer of loop-closed wirebound boxes, has been in the business of manufacturing wirebound box-making machines since 1904. These machines, which are designed to staple steel binding wire to box components and to form loops on the ends of these wires, are custom built to the requirements of the box manufacturer's market. Since the success of a wirebound operation depends, in large measure, on close and continuous mutual cooperation between Stapling Machines Co. and the wirebound manufacturer, these machines are leased, rather than sold, to the manufacturer. Stapling Machines Co. also designs, manufactures and sells certain auxiliary equipment and machines useful in the assembly and closing of wirebound containers.

As we began the 1980's, there were 25 independent manufacturers operating 40 wirebound plants in the U.S., while in 14 other countries there were 22 lessee plants utilizing Stapling-built equipment.

Because of the versatility of these machines, a variety of container sizes and designs can be fabricated to ship fresh fruits and vegetables, meat, poultry, seafood and a wide range of industrial products, including automotive parts, transformers, sanitary ware and military items. Designed for mass production of wirebound boxes and crates, this rugged machinery is capable of producing 1 million standard size fruit and vegetable crates on a one-shift, 2000 hours per year basis. Production rates for industrial wirebounds vary with the overall size of the containers.

Stapling's machines fabricate several hundred million wirebound boxes per year in the U.S. and overseas, in the countries of England, France, South Africa, Australia, Israel, Greece, Canada, Mexico, Argentina, Jordan, Honduras, Cyprus, Morocco and Rhodesia.

A manufacturer entering a leasing arrangement with Stapling Machines Co. is assured of technological and marketing support. Stapling maintains a large engineering staff which is continuously engaged in improving existing machines and developing new equipment in order to help a manufacturer operate at maximum efficiency. A Field Service department insures that machines are properly installed and assists in training a manufacturer's mechanics in proper maintenance procedures. Stapling also makes available a full line of repair and replacement parts at fair prices during the term of the lease agreement.

The company's Package Research Laboratory is involved in developing new wirebound box designs, wirebound box applications and container research and testing. Its facilities and staff in Rockaway, New Jersey are available at no charge for in-plant training of a manufacturer's marketing and sales personnel.

Stapling's long-term lease arrangement for manufacturers outside the U.S. generally provides for a term of ten years with a lessee renewal option of an additional ten year term. The lease requires payment of an initial rental based on the value of the equipment, plus a percentage of the gross sales price of the boxes made by Stapling's equipment. The lease contract provides the right to use the machines and to receive all of Stapling's services at no additional cost during the term of the lease. We will make recommendations, if requested, for accessory equipment, including sawing or veneer mill equipment needed for a box manufacturing operation.

In determining whether a prospective box manufacturer's operation would be profitable, the following considerations are vital:

1. Access to sufficient raw material (wood and wire) at a cost level adequate to insure a profit selling wirebounds competitively in local markets.
2. Organization with experience to run a high volume manufacturing operation efficiently.
3. A sales organization and sales potential to insure a sufficient volume of orders to justify installation of our high capacity machinery.
4. Financial stability and resources to acquire the necessary equipment and to meet the obligations usually associated with the operation of a wirebound box plant.

The prospective lessee should provide Stapling with as much material and information with respect to the foregoing as possible. If the above conditions are met, Stapling Machines Co., *working with the prospective manufacturer* will do the following:

BEFORE INSTALLATION of Stapling's machinery

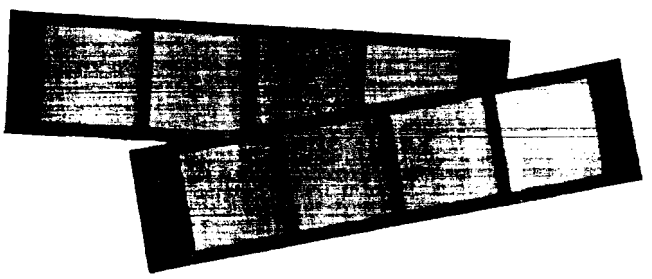
1. Container Market Survey
   (a) To determine if there is a sufficiently large unit container market.
   (b) To establish the facts about present container sizes and costs.
   (c) To obtain information about present container uses and marketing practices.
2. Feasibility Study
   This study is based on local costs of materials, labor, factory charges, etc. involved in the manufacture of wirebound containers. The results will provide an indication of the competitiveness and profitability of a wirebound operation.

SERVICES AT START of a wirebound operation

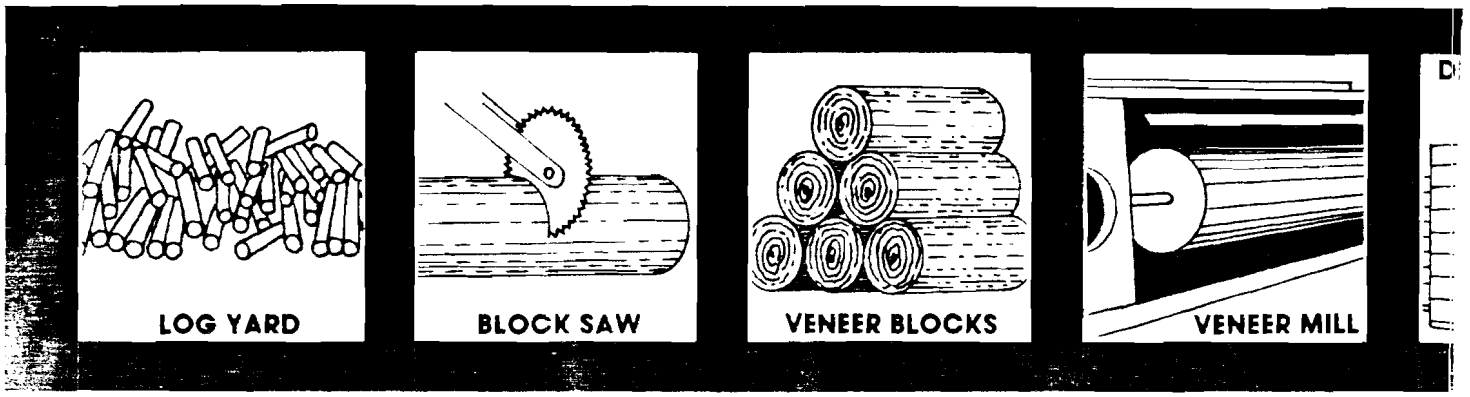
1. Machine Service
   (a) Supervise and assist in the installation of the box-making machinery.
   (b) Training of personnel in the operation of the box-making machinery.
   (c) Training of mechanics in:
   Setting up machinery according to container specification.
   Changing machine set-up required for various types and sizes of containers.
   Proper maintenance of machinery and electrical equipment.
   Special grinding procedures for maintenance of stitching equipment.
   The initial machine service and assistance lasts until the crew operating the box-making machinery can satisfactorily produce containers on the leased equipment.
2. Marketing and Technical Services
   (a) Assist in the initial promotion and development of wirebounds in a new market.
   (b) Assist in the training of personnel engaged in assembling, packing, closing and handling wirebounds.

SERVICES CONTINUOUSLY AVAILABLE to lessees

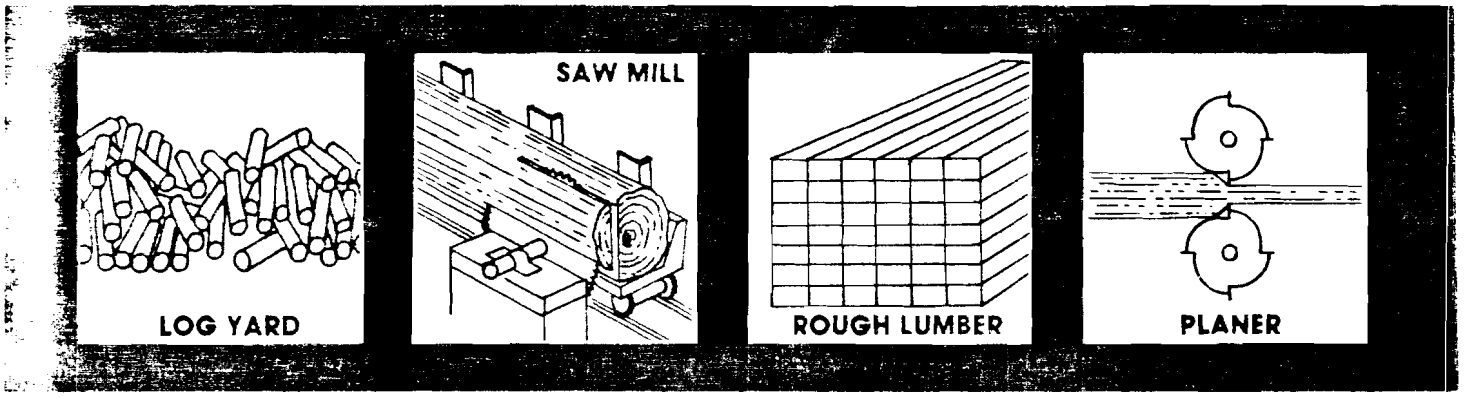
1. Design and test containers for specific products.
2. Evaluate wire, lumber and other materials to determine their suitability for the manufacture of wirebounds.
3. Upgrading of machines and equipment as developed by our research and engineering program.
4. In-plant training of personnel.
5. Inspection service at various U.S. and European ports, observing and reporting on arrival conditions of standard container shipments and special test shipments in wirebounds.



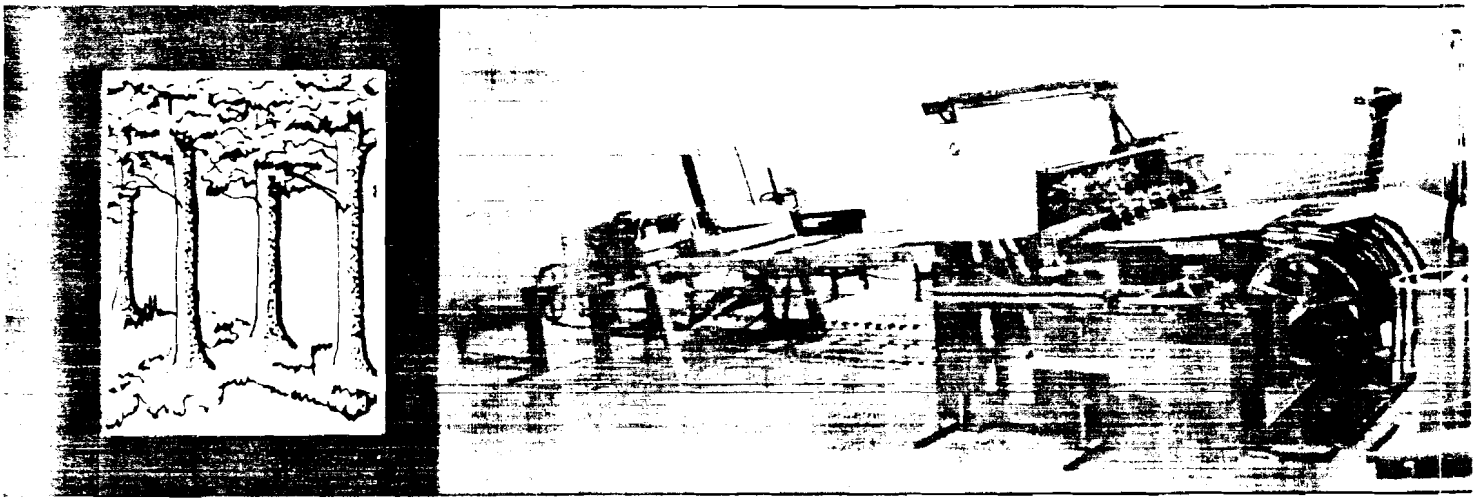
From Trees To Wirebounds

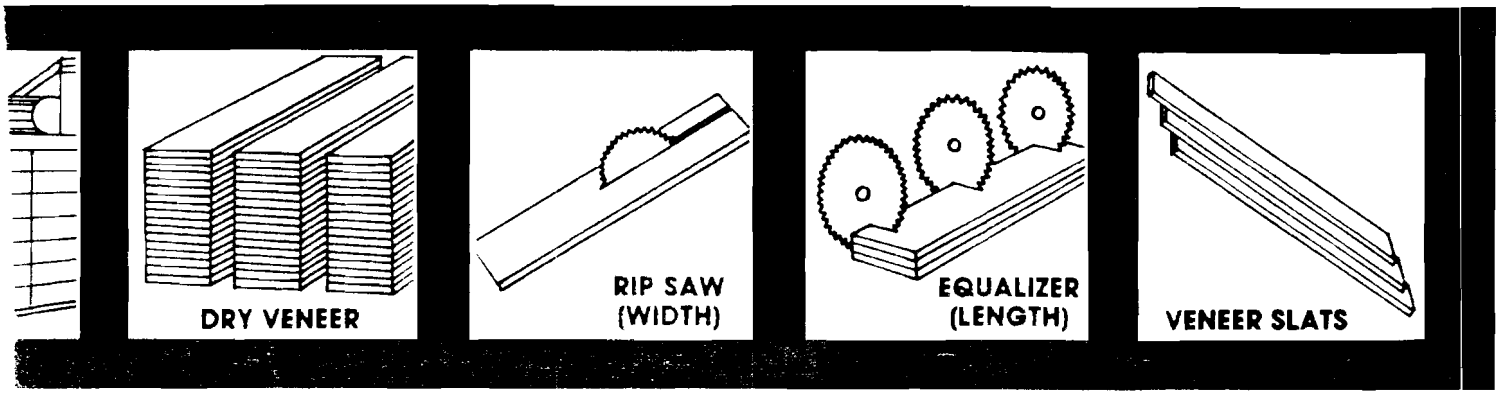


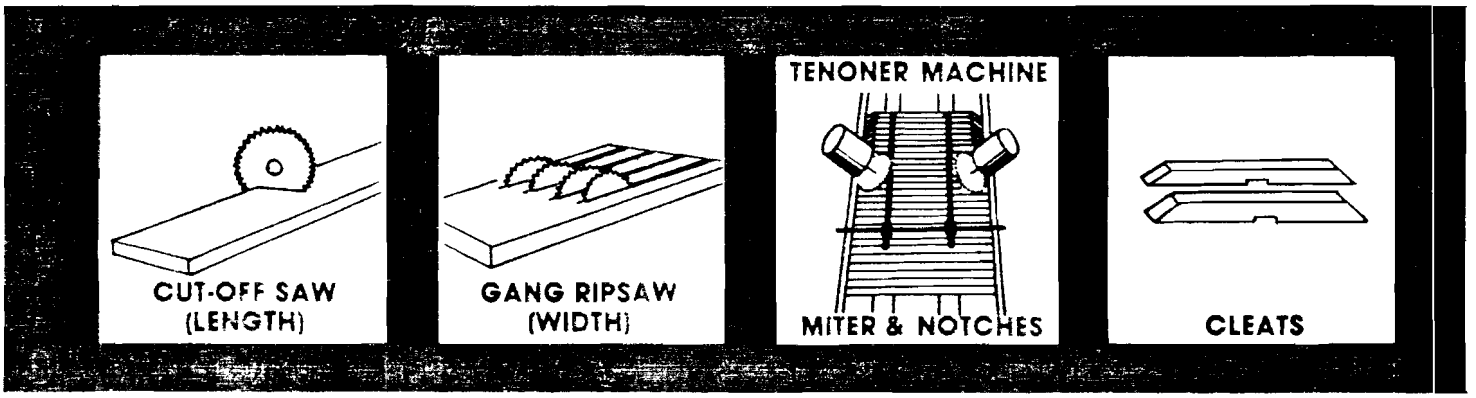
Basically, in a veneering operation for making standard wirebound containers for fresh produce items, trees are cut and trimmed and then are transported to the mill's log yard where the bark is removed. The logs are then cut into prescribed lengths and then these blocks are peeled in a lathe which produces the veneer. This material is then processed through a drye and stacked. Once dried, the veneer is cut t width and length according to a container' specifications. If the lathe is equipped with back-roll, the sizing of the veneer would b eliminated. The veneer slats are now ready fo use in making wirebounds.

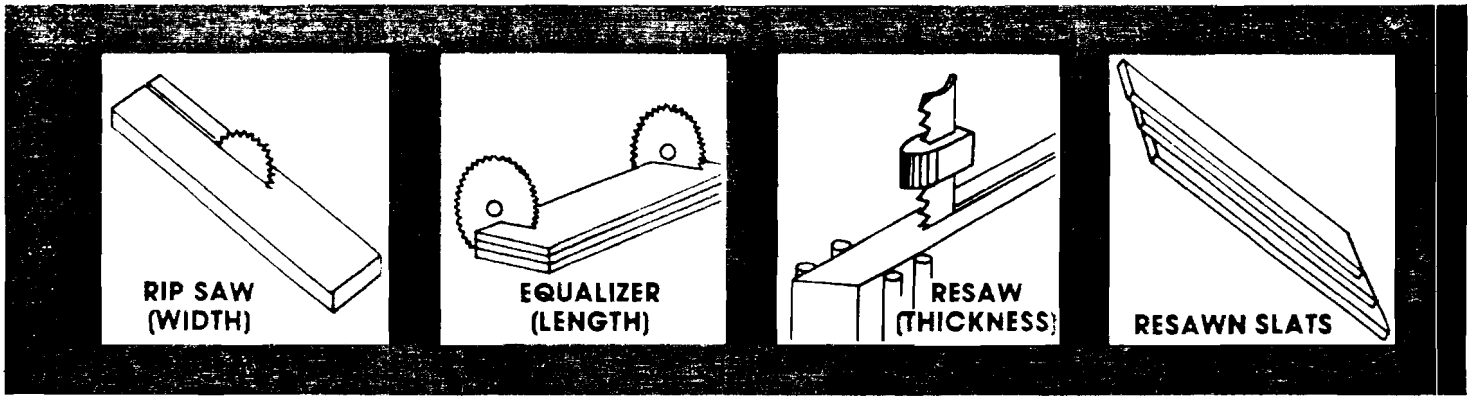


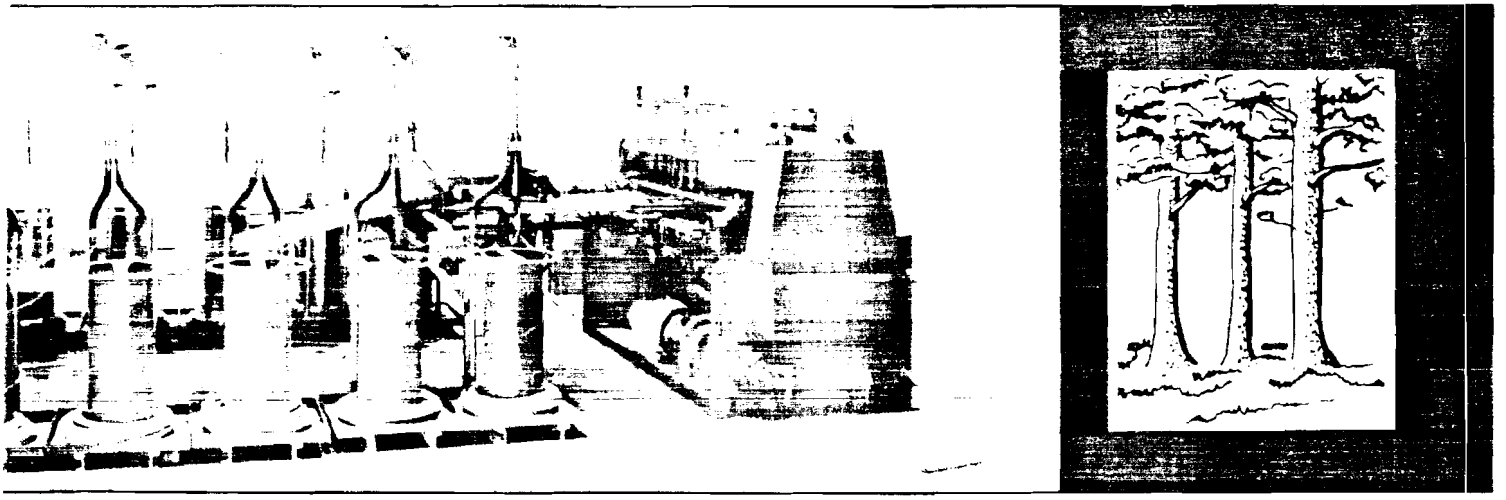
In a resawn operation for industrial wirebounds, the logs are sawn into rough boards and dried. Then they are planed on both sides to smooth the surfaces. Some of this lumber is used to make cleats; this is cut off to length, then gang ripped to width, and then mitered and/or notched (as required) in a tenoner machine. Other boards which will be used as slats are rip sawr to proper width and equalized to prope length, then resawn to the specified thicknesses The material is now ready to be fabricated int boxes and crates on Stapling's automatic stitch ing machines.

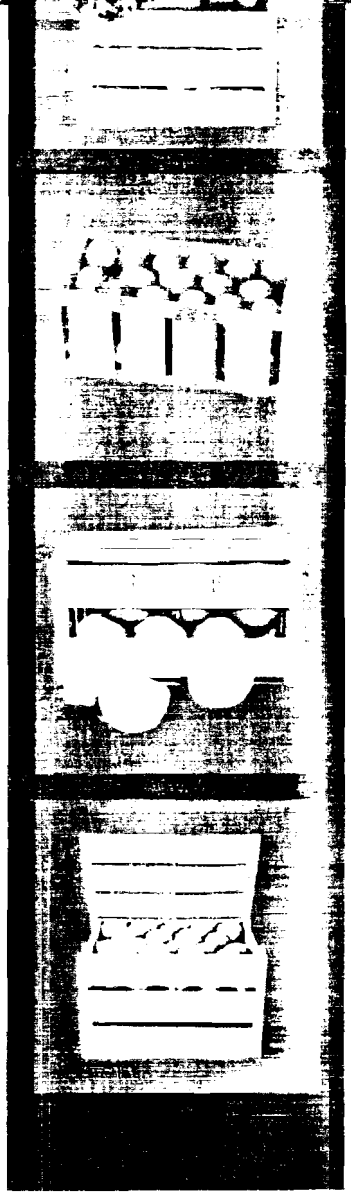



DRY VENEER
RIP SAW
(WIDTH)
EQUALIZER
(LENGTH)
VENEER SLATS


CUT-OFF SAW
(LENGTH)
GANG RIPSAW
(WIDTH)
TENONER MACHINE
MITER & NOTCHES
CLEATS


RIP SAW
(WIDTH)
EQUALIZER
(LENGTH)
RESAW
(THICKNESS)
RESAWN SLATS





Standard Containers

On a worldwide basis, the wirebound citrus crate probably ranks as the largest volume "standard" container produced on Stapling Machines Co. equipment. This container is widely used to export citrus from the major producing areas of the Mediterranean, as well as from South Africa, South America and Australia. It is also used for domestic market distribution in various other countries, including the U.S.

Peaches, tomatoes, pineapples, bananas, grapes, cantaloupe and other fruits are also protectively packaged in wirebounds. Each container is designed specifically for its contents, and therefore varies in size and shape. Some have an open top design, while others have an "all-bound" or closed top design. All wirebounds have the inherent characteristics of high stacking ability, low tare weight, ample openings for ventilation, ease of handling, fast assembly and provide rugged product protection.

These versatile containers are also popular for shipping vegetables, many of which are often packed right in the field. This includes celery, leafy items (such as lettuce, endive and escarole), cauliflower, cabbage, sweet potatoes, corn, green onions and squash. Harvested items such as cucumbers, beans, eggplant and peppers may also be brought to a central packinghouse, where, after washing and grading, they are packed in wirebound crates. Here are some typical fruit and vegetable container applications...

Industrial Containers

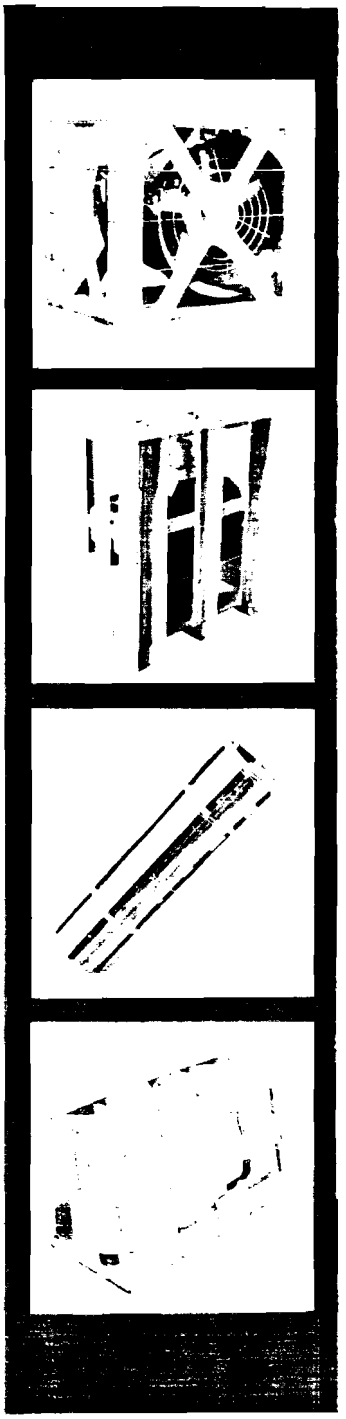
The range of industrial product applications for wirebound containers is virtually unlimited. Size and shape present no obstacles, and it is not unusual for loads weighing up to several thousand pounds to be packed in these versatile containers.

An open (crate) or closed (box) design may be utilized. Slatted construction of crates permits on-site inspection of the contents throughout the distribution cycle. Because of this visibility, there is a tendency to handle these shipments with greater care. The chance of concealed damage is also minimized.

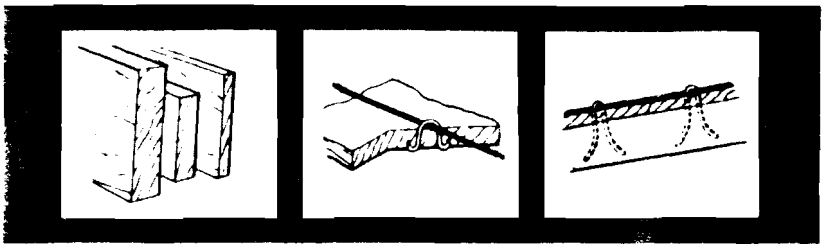
Shipped to the user in knocked-down form, wirebounds can be quickly and easily assembled using simple hand tools and unskilled labor. As a result, time, space and labor-savings are common user benefits. Although most wirebounds are designed for one trip, receivers often reuse them because they are extremely durable. In fact, they can be safely stored outdoors, regardless of weather conditions. Wirebounds retain their strength and stacking ability even under rain and high humidity conditions.

The use of thinner lumber reinforced with steel wire results in low tare weight, thus saving significant freight costs compared to other types of packaging. In addition, the cubic displacement for a given size product is less in wirebound, thereby permitting greater utilization of shipping and storage space. With so many inherent advantages, it is easy to see why wirebounds are so widely used.

Following are some typical examples of industrial wirebound containers:



FACE SECTIONS AND SLATS

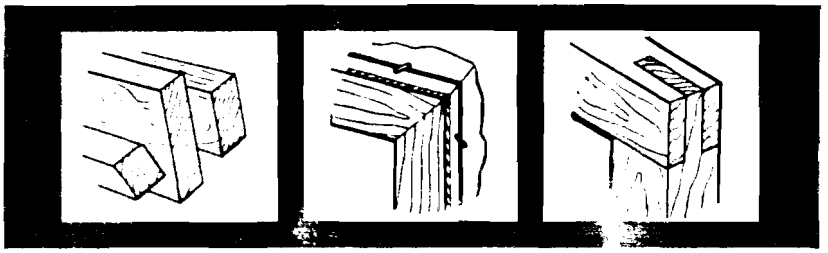


Materials used for Wirebound face sections and slats range from thin veneer to heavy resawn lumber. Many combinations are available for both domestic and export shipments.

Face boards and slats are stitched into place by wire staples over high tensile binding wires. Staples are clinched with the points fully imbedded for maximum strength, safety and smoothness.

Staples through faces into cleats (end members) are driven in such a way that the points flare after entering the wood. This provides great holding power and is an important factor in the exceptional strength of the box or crate.

CLEATS

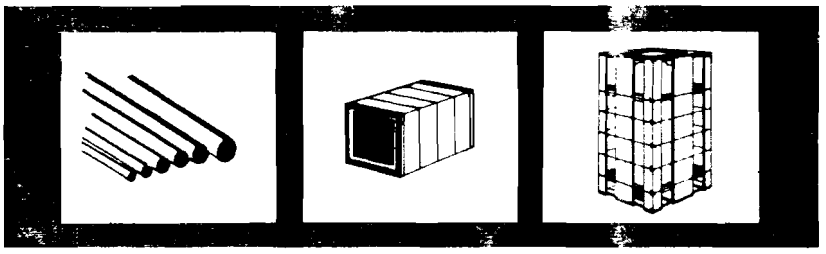


Cleats are structural supporting members stapled to each section of mat under the binding wires. Cleats may be varied in size, shape and number to attain required strength at minimum weight and cost.

Type of cleat used will depend on type and weight of contents carried. Mitered cleats are cut to the exact degree required to produce a tight joint which will withstand severe abuse.

Tongue and groove cleats are widely used. Ends and shoulders are cut perfectly square for strength. Under certain conditions other profiles, such as shiplap etc., are also used.

BINDING WIRES

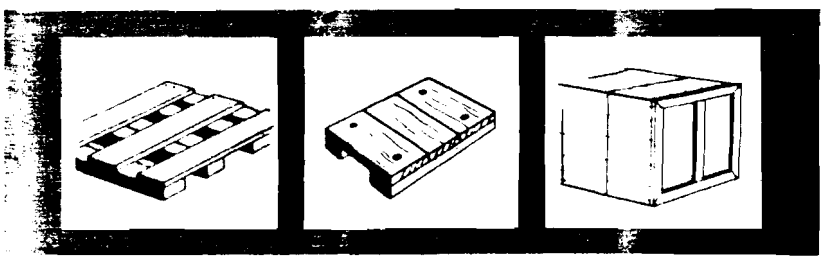


Weight of product carried, shipping conditions and container design influence the gauge of wires used in construction. All wire used is checked for gauge, ductility and tensile strength.

The number of wires is varied to meet the requirements of each individual product container. In general for light loads, light gauge wires are used; heavier wire for heavier loads.

Location of wires is also variable. Product shape and density, weight distribution, etc. are wire placement factors considered by Wirebound Engineers when designing each box or crate.

BASES (BOTTOMS) AND BATTENS



Such bases may be solid or consist of slats depending upon the product or products to be packed. Solid bases are sometimes used when one container is to be used for more than one product or size.

Battens are structural supporting members on the outside end of a box or on the top or base of a crate. Interior blocking may be added to provide for product attachment, additional support or compartmentation.

200

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STAPLING MACHINES CO.

STAPLING MACHINES CO.

Division of Rockaway Corporation

ROCKAWAY, NEW JERSEY

BULLETIN 418 PRINTED IN U.S.A. 1268