

Table 5-2-12 Total loss head by friction at each turnout(To)

Name of Lot	Turnout Number	Friction Loss (m)	Water Head (El.)	Ground Height (El.)	Pressure H ₂ O (m)
Outlet of Filter tanks			57.39	32.39	20.00
Kiwi & Peach	No. 1	-0.295	57.09	31.70	20.39
	No. 2	-0.677	56.71	31.40	20.31
Plum & Demo.	No. 1	-0.466	56.92	31.40	20.52
	No. 2	-0.848	56.54	31.20	20.34

(4) Terminal Irrigation System

1) Structure of the Terminal Irrigation System

Two(2) sets of the terminal irrigation units have been installed for grape lot, peach lot, plum lot and demonstration lot, respectively, and one(1) unit for kiwi lot. The terminal irrigation unit for the grape lot and the kiwi lot were newly provided prior to 1996 irrigation season, after the modification of support system in the former kiwi area.

A terminal irrigation unit is consisted of a turnout pipe with a sluice valve, two(2) lines of delivery pipes branched from the turnout pipe after the valve, terminal tubes for irrigation application, and attachments fit on the tubes such as emitters and mini sprinklers. The layout of system shows in the following figure.

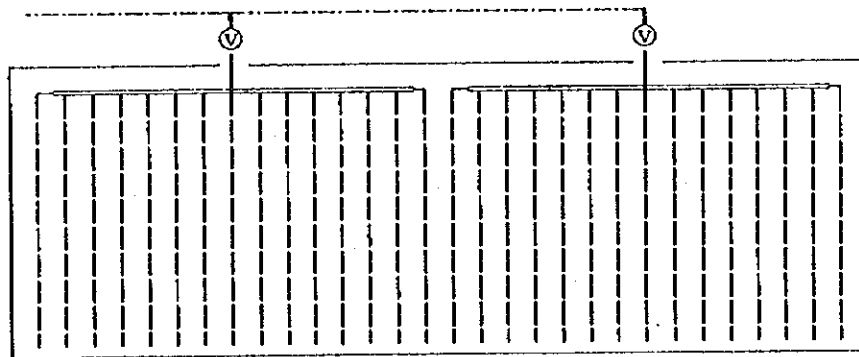


Fig. 5-2-5 Schematic plan of terminal irrigation system for orchard lot

- Legend
- : Main supply pipe
 - : Turnout Pipe of PVC ϕ 50 mm
 - ⊙ : Turnout valve of ϕ 50mm sluice valve
 - ==== : Delivery pipe of PVC ϕ 32 mm
 - : Polyethylene tube for drip or mini sprinkler

2) Terminal Irrigation Unit

a. Delivery Pipe on Farm Level

A PVC pipe with a caliber of 32 mm and three(3) bar of Turkish standard is used for the terminal pipeline system. The pipeline has a role

to deliver irrigation water to the farm through the terminal tubes branched from the pipe.

b. Terminal Tubes and Attachment

Size of tubes:

The following three sizes of tubes have been used for the system. These tubes are called by the outside diameters, because of the convenience of coupling or branch.

- 25 mm : used for drip tube for a part of poplars,
- 20 mm : used for mini sprinkler and a part of poplars,
- 16 mm : used for drip irrigation.

c. Equipments

Stop cock:

A stop cock is equipped on the tube after branched from the delivery pipe, to control the flow rate or disconnect the flow.

Emitter:

A diaphragm type of emitter commonly available in the country is used for drip irrigation practice for the trees.

Mini sprinkler :

Two sorts of mini sprinklers were used for the irrigation experiments in kiwi lot. The performance is shown in the following table. As to practical use of the rotated type, its flow rate is adjusted about 50 to 55 % of performance in both usual flow rate and spray radius.

Table 5-2-13 Performance of the micro sprinkler

Pressure bar	Rotated Type Rondo Class:Red		Fixed Spray Type	
	Flow Rate L/ha	Radius m	Flow Rate L/ha	Radius m
1.5	90	4.0		
2.0	100	4.4	31	1.7
2.5	115	4.7	35	1.8
3.0			38	1.9
3.5			41	2.0

3) Arrangement of Terminal Irrigation Attachment

a. Standard Space of Emitter and Mini Sprinkler

For the convenience of operation management of the terminal irrigation system in the orchard lots, the space of emitters and mini sprinklers fit on the tube are standardized to 1.5 m and 3.0 m respectively since the late of irrigation period in 1996, as shown in the following table:

Table 5-2-14 Standard space of terminal irrigation equipment for orchard irrigation system

Sort	Type	Spacing	Remarks
Emitter	Diaphragm	1.5 m	
Mini sprinkler	Rotated	3.0 m	
Mini sprinkler	Fixed	3.0 m	

b. Arrangement of Terminal Irrigation Units

The arrangement of terminal irrigation units is shown in the following figure.

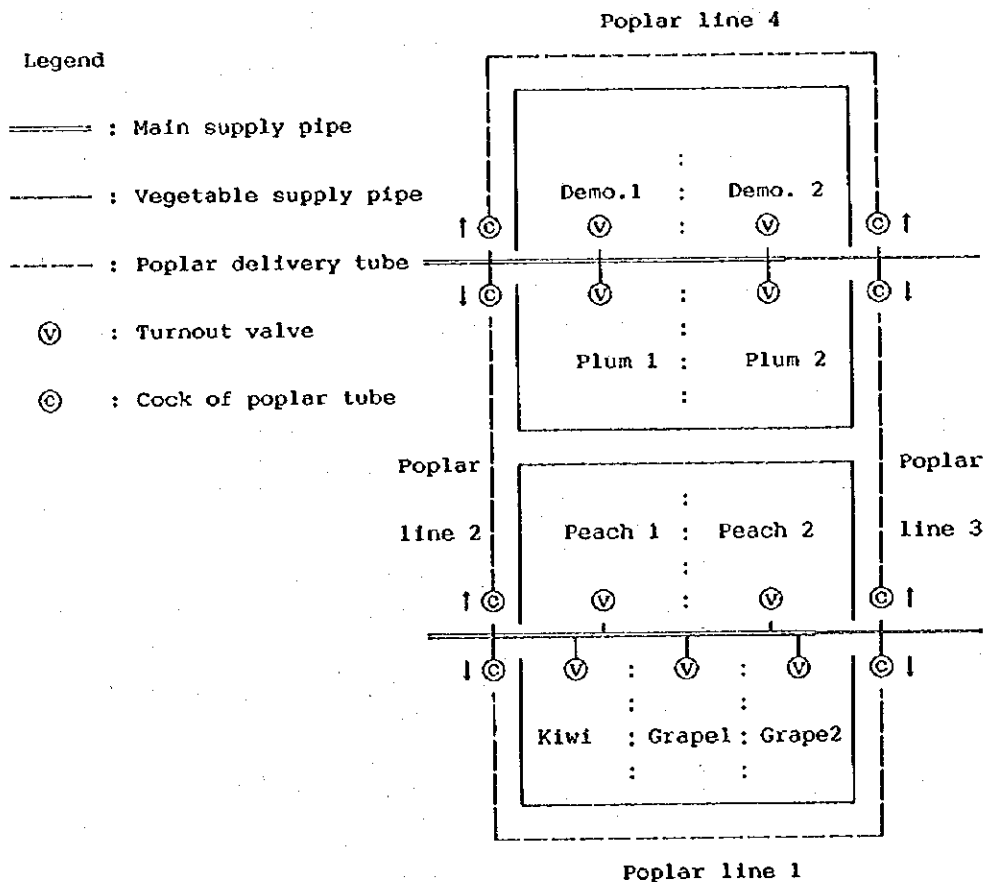


Fig. 5-2-6 Schematic diagram of irrigation unit for orchard lots

c. Number of Attachment

Proposed number of terminal attachment in each irrigation unit is shown in the following table.

Table 5-2-15 Set up of terminal attachment for orchard irrigation system

Name of Lot and Line	Sort of Attachment	No. 1 Turnout			No. 2 Turnout			Sum
		Row	unit	Sum	Row	unit	Sum	
Kiwi	Mini R.	8	23	184				184
	Mini F.	8	23	184				184
	Emitter*	2	45	90				90
Grape	Emitter	25	34	850	27	34	918	1768
Peach	Emitter	26	33	884	25	33	825	1709
Plum	Emitter	26	33	884	25	33	825	1709
Demo.	Emitter	26	22	572	25	22	550	1122
Poplar								
Line 1	Emitter							336
Line 2	Emitter							89
Line 3	Emitter							98
Line 4	Emitter							277

Note: Two(2) rows of grape vines of Japanese varieties are included in the terminal irrigation system of kiwi lot.

4) Set up of Irrigation Block

a. Proposed Irrigation Block

The following irrigation block composed of one(1) or more irrigation units as shown in the following table is recommended for routine rotational irrigation practice and individual practice.

Table 5-2-16 Proposed irrigation block and irrigation water requirement

Irrigation Block	To. unit	Attachment			volume m ³ /h	Total volume m ³ /h	Pump No. and Capacity
		Sort	No.	m ³ /hr			
Kiwi Lot	To. 1	Mini.R	184	0.050	9.20	16.07	1 x 95%
		Mini.F	184	0.030			
		Emitter	90	0.015			
Grape Lot	To. 1	Emitter	850	0.015	12.75	26.52	2 x 86%
	To. 2	Emitter	918	0.015	13.77		
Peach Lot & Poplar	To. 1	Emitter	858	0.015	12.87	31.63	2 x 93%
	To. 2	Emitter	825	0.015	12.38		
	P L 1	Emitter	336	0.015	5.04		
	P L 2	Emitter	89	0.015	1.34		
Plum Lot & Poplar	To. 1	Emitter	858	0.015	12.87	30.82	2 x 91%
	To. 2	Emitter	825	0.015	12.38		
	P L 3	Emitter	98	0.015	1.47		
	P L 4	Emitter	277	0.015	4.16		
Demonstration Lot	To. 1	Emitter	572	0.015	8.58	16.83	1 x 99%
	To. 2	Emitter	550	0.015	8.25		

Note: Irrigation facilities for nursery bed is not counted in the any irrigation block.

b. Irrigation Block and Interval

As to irrigation interval for each irrigation block, it must conform with character of trees on water requirement. In this connection, proposed irrigation block is figured in the following conditions.

Grape lot:

As grape vine has less water requirement in its nature and planted trees are still young in age, the timing of irrigation interval is adjusted from visual observation of trees and climatic conditions.

Demonstration lot:

As demonstration lot is composed of different kinds and varieties of fruit trees with different water requirement, the irrigation interval for special kind of fruit trees with less water requirement are adjusted by the same way for the grape vines.

Peach Plum and poplar :

since the last year, poplar trees were irrigated together with peach and plum lots, and capacity of each irrigation unit will fit well to the capacity of pumps enough for two(2) units, when it is combined with the poplars as shown in the above table.

Kiwi lot and grape lot:

As kiwi vines and grape vines of Japanese varieties transplanted from the demonstration lot require much more irrigation water in volume and irrigation interval than young grape vines, one(1) irrigation block is made for this lot.

5) Operation and Maintenance

a. Discharge Adjustment Through Emitter

As stated in the above section, flow rate through a diaphragm type emitter will be controlled by adjustment of its screw head, to increase its flow rate evenly, in order to match the total flow of irrigation block with the capacities of pumps.

b. Usual Check of Emitter

Drip irrigation system must be checked thoroughly, especially for dripping conditions of each emitters, during the period when the system is in operation. When something wrong on flow rate is observed on the emitter, unscrew the cap for the check of inside at first, cleaned and adjust the flow rate by the cap, or change with new one if it is not functioned well. Intensive check and adjustment of flow rate of each emitter is the only effective way to keep the drip system in successful operation.

c. Pressure Control for Mini Sprinkler

Supply pressure for rotated type of mini sprinkler is controlled by a cock installed at the beginning portion of the tube, in order to get required flow rate and spray radius. In order to get necessary flow rate and spray radius. The cock lever is moved from full open toward close side until the radius of water jet decreased to about three(3) m.

As to fix type mini sprinkler, it is no need any pressure adjustment.

(5) Surface Irrigation System

1) Outline of the System

The surface irrigation system was improved in May 1996, from original irrigation system provided for conventional irrigation method, in order to expand its service area to whole orchard area, to conduct surface irrigation tests in the orchard area. The new system takes water directly from the DSI canal with a fixed siphon and existing submerged pump and a part of the pipeline is connected at the end of siphon.

The following is the outline of this irrigation system.

Intake Siphon: Installed on the left bank of the DSI canal near the north-east corner of the orchard. It is made from welded steel pipe with a caliber of 200 mm. A screen made of steel in a basket shape put on the mouth to prevent trashes into the siphon. A hand operated pump used to start the siphon is mounted at the top of siphon, and a control valve is provided at the end of siphon.

Water meter: A water meter is provided in the irrigation system to catch an accurate volume of water.

Supply Pipeline: Single pipeline with 10 turnout with 100 mm sluice valve is newly provided along the northern border of orchard through eastern border of lot 2. A scouring sluice valve was provided at the terminal of the pipeline. A local made PVC standard pipe with a caliber of 200 mm and 3 bars pressure is used for the pipeline.

Fig. 5-2-7 is shown a schematic plan of the system.

Table 5-2-17 shows the outline of the structures.

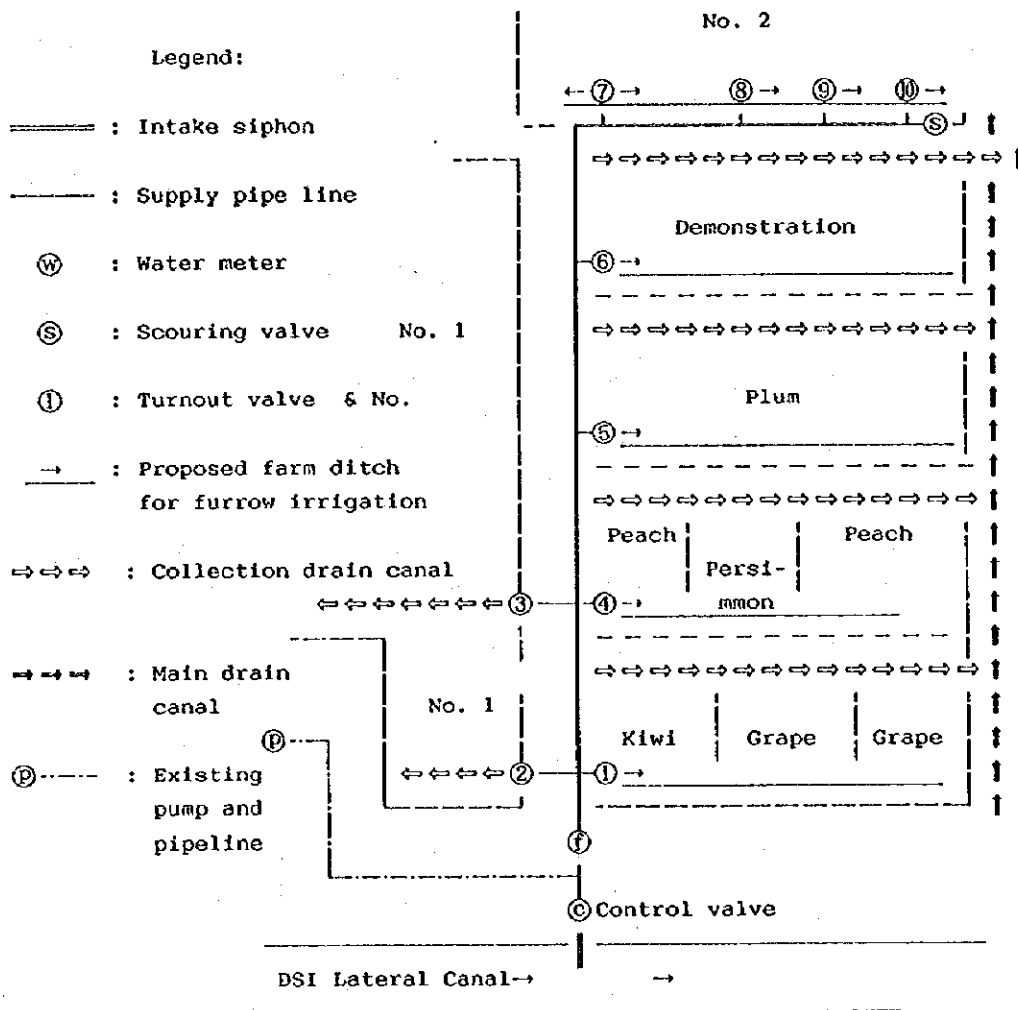


Fig.5-2-7 Schematic plan of surface irrigation system for orchard, No.1 and No.2 areas

Table 5-2-17 Outline of gravity irrigation system for orchard, No.1 and No.2 Areas

Sort	ITEM	Quantity	REMARKS
Siphon	Steel siphon	1 unit	φ 200mm with a hand pump, 29m length
	Sluice valve	1 unit	φ 200mm
Supply pipe Turnout	Water meter	1 unit	φ 200mm
	Pipeline	540m	PVC-φ 200 mm, 3-bar standard pipe
	Sluice valve	4 unit	φ 100 mm : for orchard area
Scour valve	Sluice valve	5 unit	φ 100 mm : for No.1 & No.2 areas
	Sluice valve	1 unit	φ 100 mm
Pump & pipe connected	Submerged Pipeline	1 unit 113 m	φ 100 mm, Total head 15 m, 5.5 kw discharge 1.0 m ³ /min PVC-φ 100 mm, 6-bar standard pipe

2) Hydraulic Properties

a. Loss Head of the Siphon and Pipes

Friction Slope of the pipes:

The friction slope of the pipeline is calculated the following formula.

$$I = 10.67 \times C^{-1.85} \times D^{-4.87} \times Q^{1.85} \times 1.1$$

Where:

C: Coefficient on flow = PVC pipe 140 is used.

D: Diameter of the pipe: (mm)

Q: Discharge through the pipe (m³/s)

Discharge and loss head of the siphon:

The degree of loss head differs according to the intake discharge through the siphon, which is calculated as the following formula.

$$S_h = C \times h_v = 2 \times (Q/A)^2 / 2$$

Where:

Q: Intake Volume (m³/s)

C: Loss coefficient of the intake opening = 2.00.

A: Water section area (m²)

g: Acceleration caused by gravity = 9.8 m/sec.

S_h : Loss head required for the intake through the siphon

V: Flow Velocity = Q/A

The following table shows the relationship between the discharge and the loss head of the siphon and the hydraulic slope of pipeline.

Table 5-2-18 Required head for intake and hydraulic slope of pipeline

Q(L/s)	v (m/s)	h _v (m)	S _h (m)	I
33.0	1.050	0.056	0.112	0.0058
25.0	0.796	0.032	0.064	0.0035
16.0	0.509	0.013	0.026	0.0017
12.0	0.382	0.007	0.014	0.0010

b. Discharge and Water Head at Turnout Points

The following table shows the results of calculation of water head at the turnout points in different discharge.

Table 5-2-19 Hydraulic water level for specific discharge at each turnout point

Unit: El. m

Turnout	length	To.El.	G. El.	33l/s	25L/s	16L/s	12L/s
Intake WL.		-	32.87	32.87	32.87	32.87	32.87
(Loss H.)		-	-	-0.11	-0.06	-0.03	-0.01
Head (El.)		-	-	32.76	32.81	32.84	32.86
B.P.	0.00	-	32.30	32.76	32.81	32.84	32.86
T.O. No. 1	31.00	32.25	32.17	32.58	32.70	32.79	32.83
T.O. No. 2	46.00	32.07	31.92	32.49	32.65	32.77	32.82
T.O. No. 3	122.50	31.97	31.70	32.05	32.39	32.65	32.75
T.O. No. 4	123.00	31.98	31.90	32.05	32.38	32.65	32.75
T.O. No. 5	193.00	31.87	31.76	31.65	32.14	32.55	32.69
T.O. No. 6	261.00	31.67	31.66	31.25	31.90	32.44	32.63
T.O. No. 7	282.00	31.59	31.35	31.13	31.84	32.41	32.61
T.O. No. 8	380.00	31.69	31.52	30.57	31.50	32.26	32.52
T.O. No. 9	451.00	31.57	31.30	30.15	31.25	32.16	32.45
T.O. No.10	529.00	31.52	31.27	29.70	30.98	32.14	32.38
Scour valve	531.50	31.35					

c. Water Head Required for Turnout

The maximum discharge from the valves is estimated from the available pressure at turnout points, which is also calculated from the following formula.

$$Q = C_t \times A \times \sqrt{2gh}$$

$$V_h = 1.5 \times h_v = (Q/A)^2 / 2g$$

Where:

- Q : Maximum discharge from the valve (m³/s)
- A : cross sectional area of valve (m²)
- g : Acceleration caused by gravity = 9.8 m/sec
- V_h : Required pressure (calculated in terms of depth) = 1.5h_v
- C_t : Loss coefficient of the valve = 0.50

Turnout discharge and the required head:

The following table shows the relationship between discharge and required water head for turnout the discharge calculated by the above formula.

Table 5-2-20 Hydraulic characteristics of turnout valve for different discharge

Q (L/s)	33.0	25.0	16.0	12.0
v (m/s)	4.202	3.183	2.037	1.528
h _v (m)	0.901	0.517	0.211	0.119
S _h (m)	1.351	0.775	0.318	0.179

Required water head and elevation of turnouts:

The results of calculation was arranged and shown in the following table. The column (1) in the table shows number and the outlet elevation of turnout. And in the column from (2) to (5)

shows required water level for take water through the turnout, and balance of height between turnout and water level.

And minus balance in the column means that the water head is not enough to take the corresponding discharge of water. On the contrary, the plus value means that it is possible to take water.

Table 5-2-21 Hydraulic water level of gravity irrigation system in different discharge for orchard, No. 1 and No.2 areas

(1) Turnout		(2) 33l/s		(3) 25L/s		(4) 16L/s		(5) 12L/s	
No.	El.	W.L.	Dif.	W.L.	Dif.	W.L.	Dif.	W.L.	Dif.
No. 1	32.25	31.23	-1.02	31.94	-0.30	32.48	+0.23	32.65	+0.40
No. 2	32.07	31.14	-0.93	31.90	-0.17	32.45	+0.38	32.64	+0.57
No. 3	31.97	30.70	-1.28	31.63	-0.35	32.33	+0.36	32.57	+0.59
No. 4	31.98	30.29	-1.58	31.63	-0.34	32.33	+0.37	32.57	+0.60
No. 5	31.87	29.90	-1.77	31.39	-0.48	32.23	+0.36	32.51	+0.64
No. 6	31.67	29.78	-1.81	31.15	-0.52	32.13	+0.46	32.45	+0.78
No. 7	31.59	29.21	-2.46	31.08	-0.51	32.10	+0.51	32.43	+0.84
No. 8	31.69	28.80	-2.77	30.74	-0.93	31.84	+0.27	32.34	+0.67
No. 9	31.57	28.35	-3.17	30.49	-1.07	31.72	+0.20	32.27	+0.71
No.10	31.52	28.34	-3.01	30.23	-1.29			32.21	+0.69

The table shows that the maximum turnout discharge is expected to be 16 l/s, when water level of DSI canal remains within minus 20 cm from the normal water level.

Intake water by means of two(2) or the more turnouts:

When taking water at two or more turnouts, it is possible to estimate the correct values by establishing the flow volume for each section between turnouts, then calculate the loss head between turnout section and sum up the loss head.

Intake water by two(2) engine pumps:

When two pumps with a performance of 60 m³/h or 33 l/h are used at No.9 and No.10 turnouts, the minus head or suction head at each turnout side is expected to be about -3 m as shown in the corresponding column on the above table.

d. Turnout Discharge as the Standard

The standard discharge from turnouts is assumed as follows, based on the above hydraulic calculations.

When used for surface irrigation:

Maximum of 16 l/s in both orchard and field crop areas.

When using it for a portable pumps:

Maximum of 16 liter/sec. at one(1) turnout, it is possible to use up to two(2) pumps, connected the suction pipe with the outlet of turnout.

Submerged pump:

The submerged pump is used, when the water level of DSI canal is low. Maximum of 16 l/s for both orchard and field crop areas.

3) Operation and Maintenance of System

a. Operation of the Siphon

When the first operation, it is confirmed that the sluice valve is closed. Then the siphon pipe is filled with water by the hand pump. Next, open the main valve and turnout valve concerned.

When irrigation application is over, close the turnout valve and main sluice valve at the siphon side.

During the time that siphon is in operation, the inlet of siphon must be inspected periodically, and whenever any trashes found at the siphon inlet, it must be removed without delay.

b. Maintenance of the System

There is not special maintenance of the system is required even after the irrigation season.

5-2-3. Drainage Systems

(1) Outline of Drainage Systems

1) Outline of Drainage Problems in the Region

a. Rainfall and Drainage Status in the Region

Rainfall in the Çukurova region is characterized by a long rainy season concentrated in the winter, localized heavy rainfall accompanied by thunder and lightning, and sharp differences in rainfall depths and rainfall patterns from year to year making it difficult to forecast.

The soil in the Project region is composed of clay in the whole, which means that very little water permeates through the ground when it has moisture. And when a heavy rainfalls in a short period of time, almost all of the rainfall either collects on the surface or tends to flows down toward lower elevations without permeating the ground.

Because most of all field lots are large in area and their surface gradient is very small, a very minimal volume of water which permeates the soil moves horizontally and is discharged outside of the fields.

b. Importance of Surface Drain on Farm level

In order to drain water that has permeated into ground in permeable soil, it is quite effective ways to provide tube drain or mole plow under the ground. In clayey soil, on the contrary, these measures are not only quite expensive, but also they are unreliable to expect the successful results.

Collecting water before it can permeate the soil as much as possible and draining it outside the fields is more economical and better measure applicable to clayey soil, so it can be counted on to be a more effective approach.

Considering the above mentioned conditions, the improvement works of drainage facilities in the late of the Project operation period is mostly carried out for the surface drainage improvement on farm level.

2) Outline of the Drainage System

a. Sort of Drainage Facilities

For the sake of convenience, drainage systems are categorized as project drainage systems and farm level drainage systems. Outline of each drainage system are explained in the followings.

b. Project Drainage System

The Project drainage system consists of main drain, lateral drains, and a drainage siphon.

c. Farm Level Drainage System

A farm level drainage system consists of cross drain culverts, main farm drains, and farm drains. And there is not special difference in their principle and approach for drainage improvement among crop fields, vegetable field and orchard field. However, as each scale of cultivated area and cultivation methods are different from each other, they will be categorized as crop field systems, as vegetable field system and as orchard system respectively.

(2) Project Drainage System

1) Outline of Project Drainage System

The role of a project drainage system is to receive drain water from each farm lot and drain it outside of the project area. The layout of the Project drainage system is shown in Fig. 5-2-8.

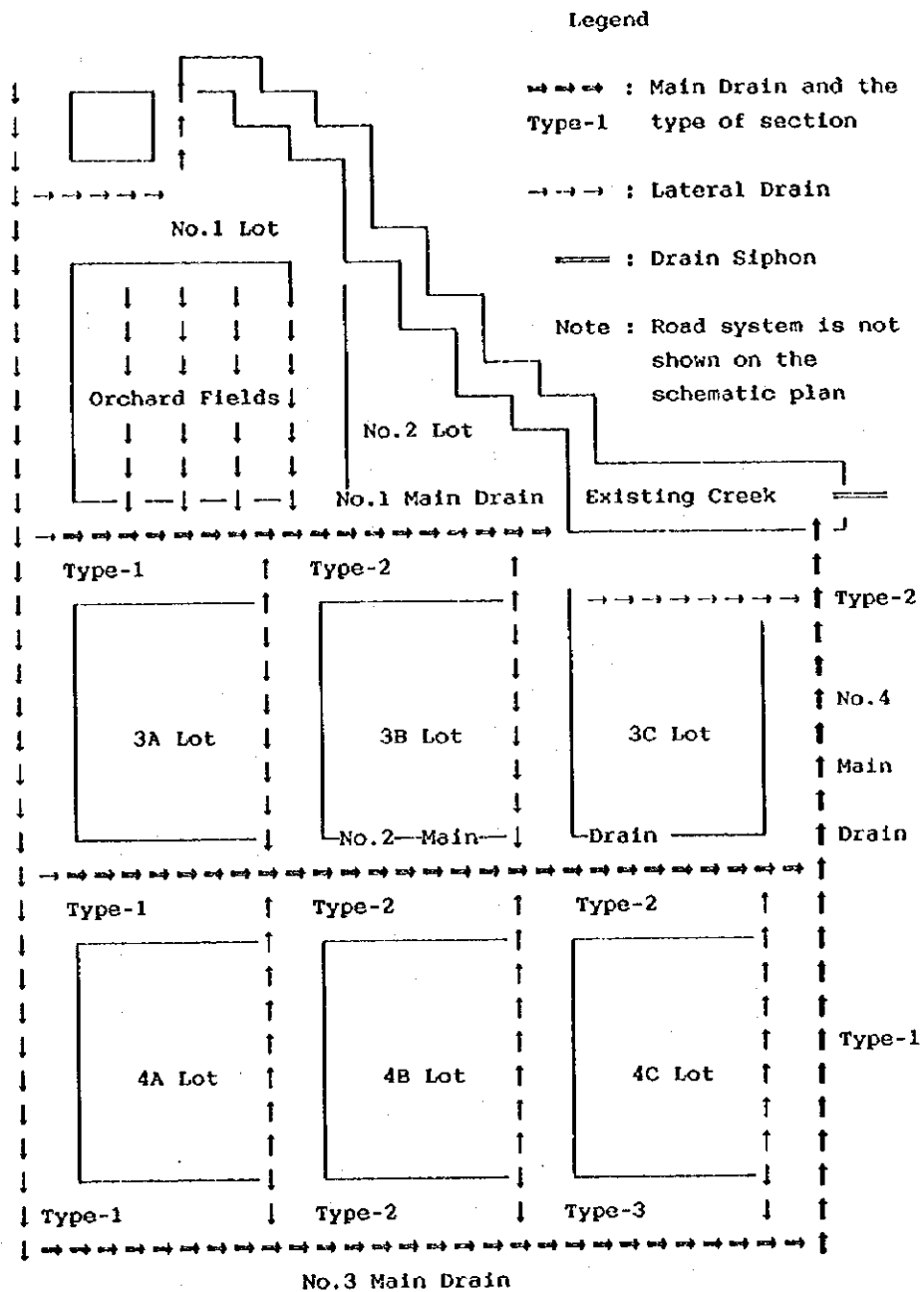


Fig. 5-2-8 Schematic plan of project drainage system

2) Main Drains

a. Drainage Areas

The main drains of No. 2 and No. 3, which are planned to receive the water from the sprinkler irrigation fields of 3A, 3B, and 4A to 4C, and carry water toward east and empties to the No. 4 drain. The No. 4 drain carries it from the south to the north along the west boundary of the

Project area. No. 1 drain collects water mostly from orchards and a part of 3A to 3C areas, and empties it existing drainage canal at the east end.

Major structures located along the main drains are, cross bridges made of concrete pipes constructed at the cross points of roads, and the same sort of cross bridges provided on the No. 2 main drain, used for crossing of boom sprinklers and travellers of rainguns.

b. Length And Dimension of Cross Section

The length and dimension of cross section of main drains, when it was constructed, are shown in the following table. But as a result of maintenance works to remove sediment in the section during the Project operation period, the cross section have been wider and deeper in the many sections, compared with the original cross section.

Especially main drain No. 1 in the section of Type-1, located along the orchard area, have been excavated wider and deeper in 1993, in order to improve drainage function in the orchard area.

Table 5-2-22 Length and standard width and depth in cross section of main drain

Main Drain No. & Type	Length	Dimension of Cross Section			Remarks
		Bottom	top	Depth	
No.1 Type-1	300 m	1.0 m	2.4 m	0.7 m	
Type-2	580 m	1.0 m	4.6 m	1.3 m	
No.2 Type-1	270 m	1.0 m	2.4 m	0.7 m	
Type-2	300 m	1.8 m	2.4 m	1.3 m	
Type-2	305 m	2.4 m	2.0 m	1.3 m	
No.3 Type-1	270 m	1.0 m	2.4 m	0.7 m	
Type-2	300 m	1.8 m	4.4 m	1.3 m	
Type-2	300 m	2.6 m	5.2 m	1.3 m	
No.4 Type-1	250 m	2.6 m	5.2 m	1.3 m	
Type-2	310 m	9.0 m	1.6 m	1.3 m	

c. Utilization of the Drainage Water

The irrigation period to be supplied from the DSI canal is limited only for dry season, when some irrigation for vegetables and orchard cultivation are required during out of the irrigation period, water remained in the storage pool will be used in the first place. Then if some more water is required for the irrigation, available water in the Project drain canal or in the drain creeks beside the Project area will be used, once it is supplied into the pool by means of the portable pump.

3) Drain Siphon

a. Purpose and Structure of a Drain Siphon

A pipe bridge was located at the terminal of drainage system of the Project area across the public road. As the bottom of the pipes is higher than the bottom at the terminal of No. 4 main drain, a siphon is installed by the project through the pipe bridge, to keep the water level lower than

the normal water level during the rainy season.

The siphon is made from welded steel pipes with an internal diameter of 20 cm, provided with two hand operated pumps on the body at their outlet and inlet sides, and a steel removable cover is attached on the outlet.

A concrete box is provided on the outlet side of the siphon to keep the outlet under water level, and the inlet opening of the syphon is set about 30 cm lower than the top of the concrete box at the outlet side, in order to maintain the function of siphon during rainy season as far as drainage flow continues.

b. Performance of the Siphon

The greater the difference of water level in elevation between the outlet and inlet sides of the siphon, the more discharge through the syphon is expected, in proportion to the square root of the different depth of water level.

The discharge through the syphon is calculated using the following formula.

$$Q = 0.5 \times A \times \sqrt{2gH}$$

Where:

- Q: Discharge through syphon in (m³/s)
- A: Sectional area of the siphon = (0.0314m²)
- g: Acceleration rate by gravity = (9.8 m/s)
- H: Water head, which means a difference of water level in elevation (m) between the inlet and outlet sides of the syphon

The following table, Table 5-2-23 shows the relationship between water head and discharge of the siphon, calculated from the formula.

Table 5-2-23 Performance of drainage siphon

H(m)	Q(m ³ /s)	Remarks
0.10	0.022	
0.20	0.031	
0.30	0.038	
0.40	0.044	
0.50	0.049	
0.60	0.053	
0.70	0.058	Bottom terminal end of No.4 D.C.
0.80	0.062	
0.90	0.066	Bottom existing drainage culverts

c. Operation and Maintenance

Starting and operating a siphon:

After placing the removable cover on the outlet, use the pumps installed on top of the siphon toto fill the siphon with water. Next, remove cover on the outlet at so that starts the siphon in operation. The siphon is designed to discharge water as long as

drainage flow continues from the Project area.

Control of the siphon during rainy season:

Inspect the operation of the siphon after rainfall, when it is required. The only maintenance work usually required is the removal of trashes caught at the inlet of the siphon.

Maintenance of siphon

There is no specific maintenance of the siphon is required, but as the pumps provided on the body of siphon have been stolen two or three times during the Project operation period, it is recommended to remove the pumps from the siphon and store them in the Project yard, during the dry season.

(3) Drainage System in Field Crop Area

1) Outline of a System

A drainage system on farm level, from its outlet, consists of drain culverts with a inlet box each, main farm drains, and farm drains. The following figure shows the outline of a drain system on farm level.

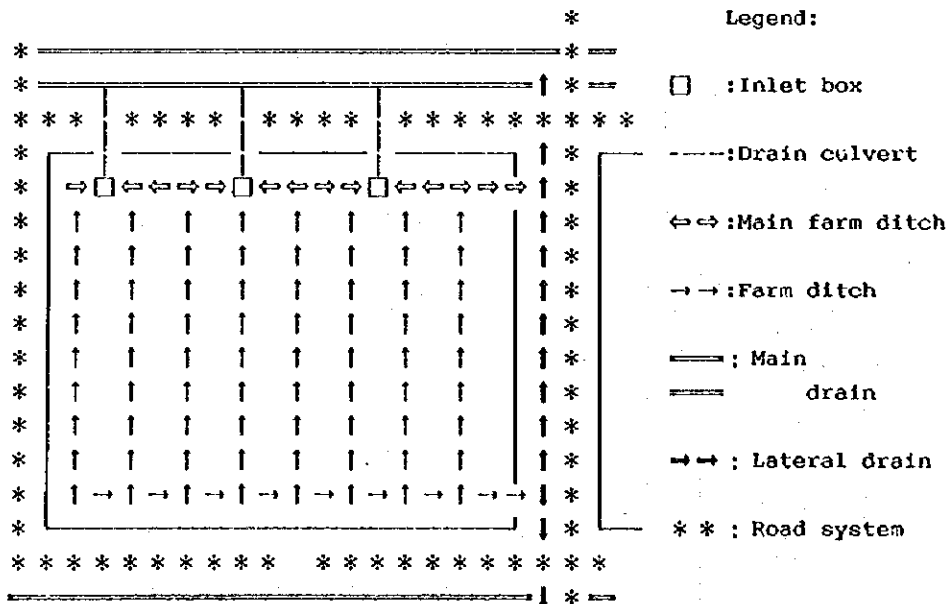


Fig.5-2-9 Schematic plan for a drain system on farm level in field crop area

2) Drain Culverts

a. Role and Structure

Drain culverts are provided at lower edge of a lot to exclude surplus surface water from the lot, which is collected by the main farm drain. The

drain culvert is made of concrete pipes with an caliber of 30 cm, and provided with a concrete box at its inlet end. The other end is opened on the side slope of the main drain or existing drain creek.

b. Maintenance

Clean inside of the concrete box prior to every rainy season. Repair eroded earth sections on the slope and bottom around the outlet of the drain pipe, before it is expanded.

The eroded section of the main drain or existing drainage canal can be restored with gravel bags, used synthetic fiber bags of fertilizer packed with gravels. The eroded section must be repaired as soon as possible when it remains only small scale.

3) Main Farm Drains

a. Role and Structure

A main farm drain, a earth ditch excavated along the lower perimeter of a field lot, catch and carries surface water, collected by the farm ditches, to the drain culverts. A grader or tractor is used to excavate main farm ditches, and they are constructed along the farm road, as close as possible.

The size of main farm drain for the field crop lot in the Project area is about one(1) m of top width and 0.3 m in depth is recommended. The profile slope of the ditch is 0.2% (1/500) at the standard. When a main farm drain is to excavate, start the work from the downstream end of the ditch, which is the beside of the drain culvert box located at the lower position. The height of proposed main farm ditch at the point shall be equal to the bottom height of the inlet opening of the box.

The main farm drain is excavated from this point as a upward slope. The most important matters to keep in mind during excavation work is, to finish its profile as uniform as possible, without providing any hollow or depressed sections throughout the full section. In this connection, it is preferable to excavate by a grader.

When it is made by a tractor, the ditch should be made as large as possible to be provided more drainage capacity. The work must be finished very carefully, when excavation of the ditch is not enough in both depth and width by one time excavation, it must be carried out by two(2) times or more. After the excavation work was completed, the inside section and embankment on both sides of the ditch are fully compacted and finished by the tires of tractor so that excavated soil does not fall back into the ditch section.

It is very difficult to repair any part of the ditch section even with a grader during the rainy season. So once the ditch was completed, the condition of the ditch must be inspected and take necessary maintenance measures by manual onto problem section to keep the ditch function in well conditions.

4) Farm Drains

a. Role and structure

A farm drains, an earth ditch excavated across the farm lot followed to the drainage direction, are provided with the purpose to collect rain water on the farm lot that has not yet permeated into the soil, and a part of moisture in the soil of adjacent area by seeping action, and guide this water to the main farm drains.

The roll of the farm drain is quite important for the purpose of drain surplus water from the lot, which connects to minimize damages of winter crops and to provide better soil conditions for tractor cultivation.

b. Installation and Maintenance

The farm ditches are excavated after seeding was completed, by means of a canal plow at right angles to the main farm ditch. When it is excavated prior to the seeding, it will be obstacle not only to the seeding operation but also to drain performance by the plant growing inside section of the ditch.

In general it can be said that the deeper the ditches the more performance of farm ditch will be expected. An appropriate size for the farm ditch to be recommended is about 70 cm at top width and about 25 cm depth.

It is extremely important that these ditches be excavated with no hollows or depressions so that their gradient will be as uniform as possible, and that the soil piled up on both sides of each ditch is carefully finished so that it does not fall back into the ditch.

After excavation, the drainage ditches are used for a period of about half of a year, but it could be said that if they are excavated carefully at the very beginning, it could be used always in good conditions without impair their functioning while they are in use.

5) Experiment in 1995

a. General

In autumn 1995, the drainage system on farm lot level was completed except some number of inlet box of drain culvert.

The farm drains was excavated on the all wheat seeded area, about 25 m intervals by means of a canal plow pulled by a tractor. During the rainy period the drains collected water successfully. However, the density or spacing of ditch is seemed so wide as to collect water from the field surface effectively.

(4) Drainage System in Orchard Area

1) Outline of the System

The orchard area is divided into four lots, and each lots is provided

with the same drainage systems as the field crop lot, although the scale of the corresponding facilities are much different.

A lateral drains of the Project were constructed along the east boundary of each orchard lot, while drainage within the orchard lot is handled by farm drains and main farm drains which collect rain water and carry it to drain culverts, which discharge it to the lateral drains. The following figure shows the outline of a drain system on orchard lot level.

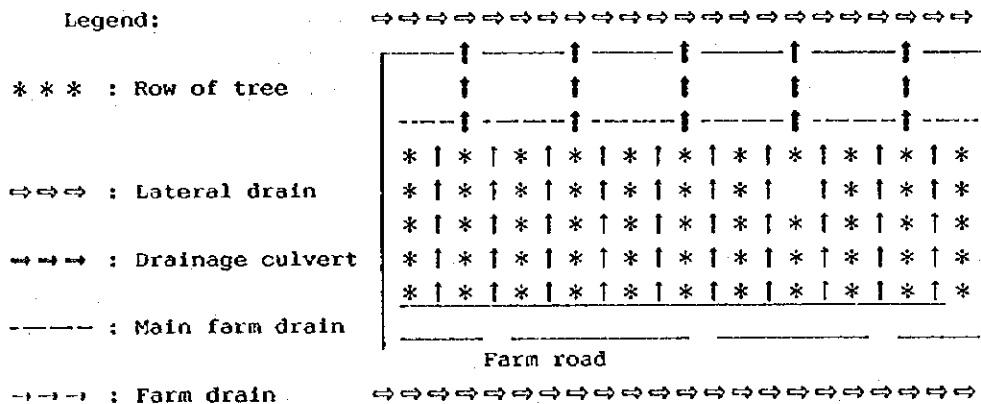


Fig.5-2-10 Schematic diagram of farm level drainage system for an orchard lot

2) Outline of Structures

a. Drain Culvert

The drain culverts were made across the traffic space, which is provided at the eastern side of each lot along the lateral drainage canal, and empties surface water from the lot to the lateral drainage ditch. The number of culvert is 12 for kiwi and grape lot, and each eight (8) for the other orchard lots.

The inlet boxes is not provided as of end of July 1996, due to the site conditions which makes it difficult to construct such sort of structures.

b. Main farm drain

The main farm drain were excavated by manual works between the planted area and traffic space, about 0.3 m in depth and about 0.6 m to 0.8 m of top width. During the rainy season, these main farm drains connect farm, to connect each inlet of drain culverts at the both end of ditches.

c. Farm Drain

The farm drains are excavated prior to the rainy season, by means of a canal plow pulled by a tractor. Before excavation of drains, the ground surface between the row of trees must be shaped so as to lower it at the

middle and higher at the tree side, in order to make a preferable drainage conditions.

(5) Drainage System in Vegetable Cultivated Area

1) Principle or Preferable Drainage System

a. General

The drainage system dealing with this section is mostly for the vegetables cultivation in autumn growing varieties especially for daikon, which grows at the early stage of rainy season and will be harvested at the midst of it.

b. Importance of Surface Drainage

In the beginning of rainy season, surface drainage will be the most important subject for drainage improvement, because the groundwater level at that time remains still in low level, and if a part of surplus water could be drained before it permeates into the soil, the harvest of daikon could be finished prior to the soil will be saturated with seeped water.

c. Drainage System in Principle

The drainage system in the cultivated area must be planed in connection with the set up of planting division and the traffic space for farming works which is customary provided around each planting division. Accordingly, drain system also must be excavated beside the traffic space to conform with the grid of traffic space.

d. Direction of Drainage Flow

The terminal of drainage system must be connected to the main farm drain or drain culvert of the farm lot.

e. Composition of Drain System

Principal drain will be excavated along the direction of the traffic space for raingun operation, and supplemental drains are excavated with the direction so as to cross the principal drain.

f. Capacity of Drains

The principal drain must have sufficient drainage capacity, because its drainage area per drain will be 1.5 ha and 300 m length. And it is quite large dimension for a farm level drainage system.

g. Preferable Ground Height for Daikon Cultivation

At the standpoint of drainage, ground level of the planted area must

be higher as much as possible than the traffic space. To this end traffic space and drains will be excavated to get higher cultivation area.

2) Proposed Drain System for Daikon Cultivation

a. Sort and Size of Proposed Drain

Four(4) size of drains as shown in the following table is recommended for proposed drain system for autumn growing vegetable cultivation.

Table 5-2-24 Dimension of proposed drain for vegetable cultivated area

Sort of Drain		Dimension of Drain			Standard Length
		Bottom	Depth	Top	
Principal drain	Type 1	0.30 m	0.50 m	1.30 m	100 m
	Type 2	0.30 m	0.40 m	1.10 m	100 m
	Type 3	0.30 m	0.30 m	0.90 m	100 m
Supplemental drain		0.20 m	0.30 m	0.80 m	45 m

b. Temporary Cross Bridge

A temporary cross bridge for tractors is recommended to provide across the principal drain, although it is not sure whether it is practical or not. as to the material the PVC pipe for sprinkler irrigation system may be used.

3) Maintenance of Drain

During growing period through harvest period, the section of all drain must be kept in well conditions. And after the harvest, trails and damaged drain section must be restored and drained by any possible measures.

Annex

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) (TL/kg)

Vegetables	S	C	Jan. 3	11	21	Feb. 1	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21	
																					W
1 broad bean bakla	W	F	20,000	8,000	8,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
	R	F	26,000	10,400	9,750	2,750	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
2 okra balya	W	F	11,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
	R	F	29,100	11,700	13,000	28,500	11,700	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600
3 pea bezelya (araka)	W	F	28,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
	R	F	29,100	11,700	13,000	28,500	11,700	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600
4 green peppers biber dolma	W	F	28,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
	R	F	29,100	11,700	13,000	28,500	11,700	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600
5 green peppers biber dolma sera	W	F	28,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
	R	F	29,100	11,700	13,000	28,500	11,700	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600
6 green peppers biber sivri tatti sera	W	F	38,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	R	F	49,400	18,400	17,000	43,000	17,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000
7 green peppers biber carliston	W	F	19,500	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400
	R	F	19,500	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400
8 tomato domates erengil	W	F	25,000	15,000	18,000	23,500	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
	R	F	35,000	4,000	6,000	8,500	9,500	12,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
9 tomato domates sera	W	F	36,500	12,500	23,400	29,900	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500
	R	F	41,300	5,200	7,800	11,050	12,350	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600
10 tomato domates Linda	W	F	38,000	15,000	18,000	23,500	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
	R	F	49,400	4,000	6,000	8,500	9,500	12,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
11 bean fasulye Aysekadin	W	F	38,000	15,000	18,000	23,500	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
	R	F	49,400	4,000	6,000	8,500	9,500	12,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 2 -

Vegetables	S	C	Jan. 3	11	21	Feb. 1	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21	(TL/kg)
bean	W	1																			
fasulye Anekadın sera	R	2																			
bean	W	1																			
fasulye Giftehän	R	2																			
bean	W	1																			
fasulye Rodosa	R	2																			
Anekadın sera	W	1																			
carrot	W	2	11,000	9,000	10,000	11,000	14,000	15,000	13,000	12,000	14,000	14,000	14,000	14,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
havuc sarfı	R	2	14,500	11,500	12,500	14,200	18,200	18,500	16,500	15,500	20,800	19,200	23,400	23,400	24,000	24,000	24,000	24,000	24,000	24,000	24,000
sofnach	W	2	19,000	17,000	16,000	16,000	16,000	17,000	16,000	12,000	13,000	13,000	13,000	13,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
İsohak kilo	R	2	27,100	22,100	20,800	19,500	21,100	11,050	15,500	15,500	12,250	9,500	9,450	13,000	9,750	15,000	15,000	15,000	15,000	15,000	15,000
squash	W	1	11,650	9,100	9,800	8,450	7,800	4,550	19,800	15,800	14,000	15,000	15,000	12,000	8,000	4,500	4,500	4,500	4,500	4,500	4,500
kabak dolma	R	2																			
cauliflower	W	2	27,000	7,500	13,000	14,000	21,000	13,000	14,000	13,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
karnabahar	R	2	32,500	9,750	16,000	18,000	28,000	19,500	14,200	16,200	35,100	41,600	41,600	41,600	41,600	41,600	41,600	41,600	41,600	41,600	41,600
watermelon	W	1	11,700	8,900	5,200	8,450	12,350	4,550	24,750	19,800	18,700	14,100	15,800	15,800	15,800	15,800	15,800	15,800	15,800	15,800	15,800
karnuz yerli	R	2																			
melon	W	1																			
kavun Kırkaose	R	2																			
melon	W	1																			
kavun yerli	R	2																			

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) (TL/kg)

		Jan. 3	11	21	Feb. 1	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21	
23	Vegetables																			
	W 1/2	14,000	9,000	9,500	6,500	9,500	9,900	9,500	9,500	12,000	10,000									
	R 1/2	5,000	3,000	3,000	2,500	3,000	2,700	2,700	2,500	3,500	3,500									
	W 1/2	18,000	11,700	12,950	8,450	12,350	11,700	8,450	8,450	15,600	13,000									
	R 1/2	6,500	3,900	3,900	3,250	3,500	3,500	3,500	3,250	4,550	4,550									
24	red cabbage																			
	W 1/2	12,300	13,000	14,000	10,000	10,000	10,000	20,000	19,000	23,000	18,000	20,000								
	R 1/2	16,900	8,500	19,800	19,800	21,000	11,000	16,300	20,400	23,000	23,000	23,000								
25	Lettuce																			
	W 1/2	11,000	13,000	13,000	14,000	13,800	4,000	3,000	3,000	3,000	4,500	3,800	4,500	4,000	5,500					
	R 1/2	14,300	15,600	13,000	15,600	16,400	6,900	11,700	11,700	5,850	4,550	1,650	5,300	5,300	2,400	1,400	3,000	3,000	1,200	800
26	parsley																			
	W 1/2	3,000	1,500	1,600	1,700	2,300	2,700	2,800	2,700	2,700	2,700	2,700	1,100	1,500	2,800	1,600	1,400	3,000	1,200	250
	R 1/2	1,000	1,000	2,000	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,400	1,800	1,800	2,100	1,800	4,900	1,900	1,900
27	mint																			
	W 1/2																			
	R 1/2																			
28	egg-plant																			
	W 1/2																			
	R 1/2																			
29	egg-plant																			
	W 1/2	10,000	8,000	8,000	7,000	2,800	3,000	2,500	2,500	2,500	2,500									
	R 1/2	4,000	11,000	11,000	3,000	3,650	11,050	8,450	7,800	7,150	3,500									
30	leek																			
	W 1/2	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
	R 1/2	3,100	3,900	3,900	3,650	3,650	3,900	3,500	3,250	3,500										
31	potato																			
	W 1/2	2,800	3,000	3,200	4,500	15,000	15,000	15,000	14,000	14,000	15,000	14,000	14,000	14,000	21,000	21,000	21,000	21,000	21,000	19,500
	R 1/2	12,500	11,700	11,700	18,600	19,500	19,500	19,500	18,200	18,200	18,200	18,200	18,200	18,200	28,900	28,900	28,900	28,900	28,900	18,200
32	potatoes																			
	W 1/2	8,000	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500
	R 1/2	10,400	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450	8,450
33	radish																			
	W 1/2	19,400	8,250	8,250	3,260	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560
	R 1/2	24,700	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1955) (TL/kg)

Vegetables		S	C	Jan. 3	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21		
34	cucurba salatalik	W	1	36,000															7,000	
		R	2	24,000																2,000
35	cucurba salatalik sera	W	1	40,000	38,000	32,000	28,000	24,000	20,000	17,000	16,000	15,000	12,000	12,000	17,500	7,500	10,000	10,000	10,000	3,200
		R	2	32,000	29,500	28,000	26,500	25,000	23,500	22,000	20,500	19,000	17,500	16,000	15,000	22,500	8,500	13,000	13,000	13,000
36	garlic sarmsak kuru	W	1	35,000	33,000	30,000	28,000	26,000	24,000	22,000	20,000	18,000	16,000	15,000	20,000	30,000	30,000	28,000	28,000	20,500
		R	2	35,000	33,000	30,000	28,000	26,000	24,000	22,000	20,000	18,000	16,000	15,000	14,000	21,000	31,000	31,000	29,000	29,000
37	garlic sarmsak yesil	W	1	15,000																20,000
		R	2	20,000																20,000
38	onion soğan kuru	W	1	7,800	18,000	20,000	20,000	20,000	20,000	17,000	13,000	13,000	13,000	13,000	16,000	13,000	13,000	13,000	13,000	5,000
		R	2	17,500	23,400	26,000	26,000	26,000	26,000	24,700	22,100	22,100	22,100	22,400	22,400	23,200	19,000	19,000	19,000	2,500
39	onion soğan Karacabey	W	1																	2,500
		R	2																	2,500
40	Welsh onion soğan yesil kilo	W	1	23,000	22,000	20,000	19,000	18,000	17,000	16,000	15,000	14,000	13,000	12,000	10,000	8,000	8,000	8,000	8,000	3,500
		R	2	21,000	20,400	19,800	19,200	18,600	18,000	17,400	16,800	16,200	15,600	15,000	14,400	13,800	13,200	12,600	12,000	12,500

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995)

- 5 -

(TL/Kg)

Fruits	S	Q	Jan. 3		11		21		Mar. 1		11		21		Apr. 1		11		21		May 1		9		20		Jun. 1		10		21								
			W	R	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2							
1 pear amat Frenk	W	1																																					
	R	2																																					
2 quince aya	W	1																																					
	R	2																																					
3 apple elma Anasya	W	1	12,000		1,000	12,900	4,500	12,900	12,900	12,900	17,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	
	R	2	15,600	4,550	14,300	15,600	5,850	15,600	5,850	15,600	17,000	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	
	W	1	18,500	6,000	18,000	17,000	6,500	18,000	6,500	18,000	18,000	17,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	
	R	2	21,450	8,450	23,400	23,400	8,450	23,400	8,450	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	
4 elma Staroin	W	1	19,000	6,500	19,000	17,000	6,500	19,000	6,500	19,000	17,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	
	R	2	24,700	8,450	23,400	23,400	8,450	23,400	8,450	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	
	W	1	19,000	6,500	19,000	17,000	6,500	19,000	6,500	19,000	17,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
	R	2	24,700	8,450	23,400	23,400	8,450	23,400	8,450	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	23,400	
5 apple elma Golden	W	1																																					
	R	2																																					
6 apple elma	W	1																																					
	R	2																																					
7 plum erik	W	1																																					
	R	2																																					
8 plum erik Italyan	W	1																																					
	R	2																																					
9 plum erik can	W	1																																					
	R	2																																					
10 plum erik sari	W	1																																					
	R	2																																					
11 grape fruit eresfurt kamli	W	1	9,600	2,500	9,000	8,000	2,500	9,000	2,500	9,000	8,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000		
	R	2	11,700	3,250	10,400	10,400	3,250	10,400	3,250	10,400	11,700	10,400	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700		

Annex 1. Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 6 - (TL/kg)

Fruits	S	C	Jan. 3	11	21	Feb. 1	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21
			W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R
12	orange fruit	W	2																	
	grey furt	R	2																	
13	fig	W	2																	
	incir	R	2																	
14	cherry	W	2																	
	kiraz demirhindi	R	2																	
15	sour cherry	W	2																	
	visane	R	2																	
16	cherry	W	2																	
	kiraz beyaz	R	2																	
17	cherry	W	2																	
	kiraz Naoolyon	R	2																	
18	cherry	W	2																	
	kiraz Alsehir (Denizli)	R	2																	
19	lemon	W	2	10.000	8.900	8.900	8.000	8.000	10.000	8.000	11.000	14.000	14.000	14.000	18.000	24.000	24.000	24.000	24.000	24.000
	limon ekol	R	2	13.000	11.050	11.500	10.400	13.000	10.400	14.300	18.200	18.200	16.000	18.200	20.800	23.400	26.000	31.200	31.200	32.500
20	lemon	W	2	3.400	3.500	3.500	3.500	3.900	3.200	5.200	5.200	4.800	4.800	4.700	9.700	12.800	13.600	13.600	15.000	18.200
	limon yatak	R	2												22.000	27.000	15.000	17.000	18.000	20.000
21	mandarin	W	2	2.500	2.700	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
	mandarina Freynut	R	2	12.250	11.050	15.000	15.000	15.000	16.900	16.900	16.900	16.900	16.900	16.900	16.900	16.900	16.900	16.900	16.900	16.900
22	mandarin	W	2	8.500	8.000	11.000	7.500													
	mandarina Kirse	R	2	11.050	10.400	14.350	14.300													

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) (TL/Kg)

Fruits	S	C	Jan. 3		Feb. 1		Mar. 1		Apr. 1		May 1		Jun. 1		21
			11	21	11	21	11	21	11	21	11	21			
23 mandarin	W	1	50.000	50.000	51.000	55.000	54.000	54.000	56.000	56.000	55.000	55.000	55.000	55.000	50.000
	R	1													
24 banana	W	1	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000	38.000
	R	1													
25 orange	W	1	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000
	R	1													
26 portakal yafa	W	1	11.300	10.400	12.300	13.000	15.600	15.600	18.600	18.600	18.600	18.600	18.600	18.600	18.600
	R	1													
27 orange	W	1	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700
	R	1													
28 portakal valens	W	1	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000
	R	1													
29 peach	W	1	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000	30.000
	R	1													
30 seftali verli	W	1	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
	R	1													
31 seftali R-1	W	1	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000	17.000
	R	1													
32 uzum antep siyah	W	1	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
	R	1													
33 uzum antep beyaz	W	1	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
	R	1													

Annex 1. Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 8 -

Fruits	S	C	Jan. 3	11	21	Feb. 1	11	21	Mar. 1	11	21	Apr. 1	11	21	May 1	9	20	Jun. 1	10	21	(TL/kg)	
																						W
34 grape uzum Tarsusu	W	I																				
	R	Z																				
35 loquat yeni dunya vertii	W	I																				
	R	Z																				
36 loquat yeni dunya duble	W	I																				
	R	Z																				
37 apricot zerdali Tokaloplu	W	I																				
	R	Z																				
38 apricot zerdali Sekerpare	W	I																				
	R	Z																				
39 apricot kazisi	W	I																				
	R	Z																				

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) (TL/kg)

Vegetables		S	C	Jul. 1	11	21	Aug. 1	11	21	31	Sea. 11	21	Oct. 3	12	21	Nov. 2	11	21	Dec. 1	12	21		
1	broad bean bakla	W	1	27,000	27,000	25,000	32,000	32,000	29,000	10,000	48,000	37,000	50,000	55,000									
		R	1	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000								
2	okra	W	1	35,100	35,100	45,500	32,000	32,000	41,000	32,000	56,000	48,100	65,500	71,000									
		R	1	13,000	13,000	20,500	15,000	15,000	18,200	23,400	26,000	26,000	26,000	26,000	26,000								
3	pea bezelya (araka)	W	1																				
		R	1																				
4	green peppers biber dolias	W	1	20,000	20,000	22,000	18,000	15,000	19,000	16,000	19,000	20,000	20,000	20,000	25,000								
		R	1	26,000	26,000	28,000	23,400	19,500	24,700	20,000	24,700	23,000	23,000	23,000	23,000								
5	green peppers biber dolias sera	W	1																				
		R	1																				
6	green peppers biber sivri tatli sera	W	1	19,000	16,000	14,000	15,000	12,000	18,000	15,000	19,000	19,000	20,000	20,000	20,000	20,000	25,000	20,000	25,000	20,000	80,000	70,000	55,000
		R	1	8,000	8,000	8,000	8,500	8,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	40,000	30,000
7	green peppers biber carliston	W	1	23,400	20,800	18,200	19,500	15,600	23,400	19,500	23,400	23,400	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	104,000	91,000	100,000
		R	1	10,400	8,450	7,800	8,450	7,800	8,100	8,750	8,100	8,750	8,100	8,100	8,100	8,100	8,100	8,100	8,100	8,100	8,100	52,000	36,000
8	tomato domates Tokat	W	1				15,000																
		R	1				19,500																
9	tomato domates sera	W	1																				
		R	1																				
10	tomato domates Linda	W	1	5,000	6,000	5,000	7,500			8,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
		R	1	1,200	1,200	1,200	2,000			3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
11	bean fasulye Aysekadin	W	1	6,500	7,800	6,500	9,700			11,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		R	1	1,300	1,300	1,300	2,600			3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
	bean fasulye Aysekadin	W	1	20,000	25,000	28,000	30,000	17,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
		R	1	9,000	12,000	12,000	14,000	8,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
	bean fasulye Aysekadin	W	1	26,000	32,500	36,400	39,000	22,100	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
		R	1	11,700	15,600	15,600	18,200	10,400	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000

Annex 1. Trend of the Farm Products Prices at Aduna Vegetable and Fruit Wholesale Market (1995) - 10 -

Vegetables	S	C	W	F	T	R	M	J	A	M	J	J	A	S	O	N	D	D	C	T	
																					Jul. 1
12 bean	W	1/2																			
	R	1/2																			
fasulye Aysekadin sera	W	1/2	40.000	20.000	23.000	22.000	38.000	38.000	24.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
	R	1/2	18.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000
13 bean	W	1/2	52.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000
	R	1/2	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000
14 fasulye Rodosa	W	1/2	8.500	12.500																	
	R	1/2	11.000	15.000																	
15 Aysekadin sera	W	1/2																			
	R	1/2																			
16 carrot	W	1/2	19.000	12.000	2.500	3.000	19.000	3.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000
	R	1/2	13.500	15.500	3.500	11.500	13.500	11.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500
17 ispanak kilo	W	1/2	20.000	14.000	7.000	8.000	20.000	14.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000
	R	1/2	26.000	18.000	8.000	23.000	26.000	18.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000
18 squash	W	1/2	11.000	9.000	3.500	4.000	11.000	4.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000	11.000
	R	1/2	14.000	13.000	11.000	11.000	14.000	11.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000	14.000
19 cauliflower	W	1/2	3.500	3.200	4.500	4.500	3.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500
	R	1/2	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
20 watermelon	W	1/2	9.500	11.000	7.000	8.000	9.500	8.000	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500
	R	1/2	13.500	14.500	2.500	3.500	13.500	2.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500
21 melon	W	1/2	17.000	19.000	18.500		17.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000
	R	1/2	12.100	23.400	23.400	11.000	12.100	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400
22 kavun verilli	W	1/2	16.000	19.500	15.000		16.000	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500	19.500
	R	1/2	29.800	23.400	19.500		29.800	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400	23.400

Annex 1 Trend of the Farm Products Prices at Adana Wholesale Market (1995) (TL/Kg)

Vegetables	S	C	Jul. 1		Aug. 1		Sep. 1		Oct. 3		Nov. 2		Dec. 1		21	
			11	21	11	21	11	21	11	21	11	21	11	21	11	21
cabbage	W	1/2	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
	R	1/2	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350
red cabbage	W	1/2	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500	19,500
	R	1/2	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
lettuce	W	1/2	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800
	R	1/2	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800	17,800
parsley	W	1/2	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	R	1/2	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
mint	W	1/2	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
	R	1/2	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
egg-plant	W	1/2	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
	R	1/2	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150	7,150
potatö	W	1/2	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	R	1/2	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350	12,350
leek	W	1/2	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050
	R	1/2	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900
potato	W	1/2	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
	R	1/2	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700	24,700
potato	W	1/2	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
	R	1/2	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200	18,200
radish	W	1/2	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700
	R	1/2	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700	14,700

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 12 - (TL/100)

Vegetables	S	C	Jul. 1	11	21	Aug. 1	11	21	Sep. 11	21	Oct. 3	12	21	Nov. 2	11	21	Dec. 1	12	21				
34	W	2	9.000	11.000	10.000	10.000	9.500	19.000	15.000	14.000	14.000	15.000	30.000	30.000	30.000	30.000	30.000	30.000	40.000	40.000			
	R	2	2.000	4.500	4.000	3.500	3.000	9.000	6.500	6.500	6.500	6.500	6.500	14.000	14.000	14.000	14.000	14.000	20.000	20.000			
	W	2	11.700	14.300	13.000	13.000	12.350	24.300	19.500	18.200	18.200	19.500	38.000	38.000	38.000	38.000	38.000	38.000	52.000	64.000			
	R	2	3.900	5.500	5.800	4.550	3.900	11.700	8.450	8.450	8.450	8.450	18.200	18.200	18.200	18.200	18.200	18.200	26.000	26.000			
35	W	2						14.000	10.000	10.000	10.000	10.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000			
	R	2						2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100			
36	W	2	32.000	35.000	35.000	35.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	45.000	45.000	45.000	45.000	45.000	50.000	45.000			
	R	2	18.000	15.000	15.000	15.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000			
37	W	2	41.600	45.500	45.500	45.500	52.000	52.000	52.000	52.000	52.000	52.000	52.000	58.500	58.500	58.500	58.500	58.500	58.500	58.500			
	R	2	19.500	19.500	19.500	19.500	26.000	26.000	26.000	26.000	26.000	26.000	26.000	32.500	32.500	32.500	32.500	32.500	32.500	32.500			
38	W	2	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.000			
	R	2	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150			
39	W	2	8.000	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500			
	R	2	10.400	12.950	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400	10.400			
40	W	2	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.350	4.150			
	R	2	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000			
Remarks :			S : Type of Sales.			W : Wholesale.			R : Retail.			C : Class											

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995)

Fruits	S	C	Jul. 1		Aug. 1		Sep. 1		Oct. 3		Nov. 2		Dec. 1		21	21	
			11	21	11	21	31	21	31	21	31	21	31	21			31
1 pear	W	1/2	12.000	20.000	20.000	30.000	35.000	37.000	37.000	35.000	37.000	38.000	38.000	30.000	30.000		
	R	1/2	10.000	9.500	15.000	15.000	15.000	18.000	16.000	14.000	17.000	18.000	18.000	18.000			
1 armut (Santamaris)	W	1/2	25.000	25.000	35.000	45.500	45.500	48.100	45.500	45.500	49.100	49.400	49.400	50.000	50.000		
	R	1/2	15.000	15.500	19.500	20.800	23.400	20.800	23.400	27.100	22.100	23.400	23.400	25.000	25.000		
2 quince	W	1/2							16.000	35.000	30.000	37.000	35.000	30.000	35.000		
	R	1/2							11.000	19.800	13.000	22.100	25.000	25.000	25.000		
3 apple	W	1/2									14.000	16.900	17.000	17.000	20.000		
	R	1/2									19.200	20.200	20.400	20.400	26.000		
4 apple	W	1/2									25.000	20.000	17.000	17.000	25.000		
	R	1/2									15.000	10.000	7.000	6.500	15.000		
5 apple	W	1/2									35.000	35.000	32.500	32.500	35.000		
	R	1/2									28.000	28.000	28.000	28.000	28.000		
6 apple	W	1/2									30.000	30.000	29.000	29.000	30.000		
	R	1/2									25.000	25.000	25.000	25.000	25.000		
7 plum	W	1/2									20.000	20.000	20.000	20.000	20.000		
	R	1/2									15.000	15.000	15.000	15.000	15.000		
8 plum	W	1/2									25.000	25.000	25.000	25.000	25.000		
	R	1/2									20.000	20.000	20.000	20.000	20.000		
9 plum	W	1/2									25.000	25.000	25.000	25.000	25.000		
	R	1/2									20.000	20.000	20.000	20.000	20.000		
10 plum	W	1/2									25.000	25.000	25.000	25.000	25.000		
	R	1/2									20.000	20.000	20.000	20.000	20.000		
11 grape fruit	W	1/2									15.000	15.000	15.000	15.000	15.000		
	R	1/2									10.000	10.000	10.000	10.000	10.000		

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1996) - 14 -

Fruits	S	C	Jul. 1	11	21	Aug. 1	11	21	Sep. 11	21	Oct. 3	12	21	Nov. 2	11	21	Dec. 1	12	21	
			(TL/kg)																	
12 grape fruit	W	1																		
	R	1																		
13 grey furt	W	1																		
	R	1																		
14 fig	W	1																		
	R	1																		
15 cherry	W	1																		
	R	1																		
16 kiraz demirhindi	W	1																		
	R	1																		
17 sour cherry	W	1																		
	R	1																		
18 visne	W	1																		
	R	1																		
19 cherry	W	1																		
	R	1																		
20 kiraz bezaz	W	1																		
	R	1																		
21 cherry	W	1																		
	R	1																		
22 kiraz Naoliyon	W	1																		
	R	1																		
23 cherry	W	1																		
	R	1																		
24 kiraz Aksehir	W	1																		
	R	1																		
25 lemon	W	1																		
	R	1																		
26 lemon	W	1																		
	R	1																		
27 lemon yatak	W	1																		
	R	1																		
28 mandarin	W	1																		
	R	1																		
29 mandarina Freymut	W	1																		
	R	1																		
30 mandarin	W	1																		
	R	1																		
31 mandarina Kimo	W	1																		
	R	1																		

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 15 - (TL/kg)

Fruits	S	C	Jul. 1	11	21	Aug. 1	11	21	31	Sep. 11	21	Oct. 3	12	21	Nov. 2	11	21	Dec. 1	12	21	
																					W
23 mandarin	W	1										15.000	17.000	15.000	13.000	15.000	15.000				
	R	2										7.000	7.500	10.000	8.500	7.000					
mandarina yerli	W	1										20.800	21.100	16.900	19.500	19.500					
	R	2										9.100	9.900	7.150							
24 bahana	W	1	55.000	65.000	65.000	65.000	65.000	65.000	65.000	65.000	65.000	65.000	65.000	60.000	60.000	60.000	70.000	70.000	70.000	70.000	
	R	2	35.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	
24 muz	W	1	71.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	84.500	
	R	2	45.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	52.500	
25 orange	W	1																			
	R	2																			
25 portakal Vasineton	W	1																			
	R	2																			
26 orange	W	1																			
	R	2																			
26 portakal yafa	W	1																			
	R	2																			
27 orange	W	1																			
	R	2																			
27 portakal yerli	W	1																			
	R	2																			
28 orange	W	1																			
	R	2																			
28 portakal Valens	W	1																			
	R	2																			
29 peach	W	1	36.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	32.000	
	R	2	18.000	18.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	22.000	
29 seftali Bursa	W	1	46.800	41.600	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	38.500	
	R	2	18.500	20.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	28.800	
30 peach	W	1																			
	R	2																			
30 seftali yerli	W	1																			
	R	2																			
31 peach	W	1																			
	R	2																			
31 seftali R-1	W	1	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	
	R	2	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	
32 grape	W	1	19.000	19.000	12.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000	
	R	2	23.400	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	
32 uzum Antep sivah	W	1	9.100	9.100	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	
	R	2	20.800	20.800	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	15.600	
33 grape	W	1																			
	R	2																			
uzum Antep bezaz	W	1																			
	R	2																			

Annex 1 Trend of the Farm Products Prices at Adana Vegetable and Fruit Wholesale Market (1995) - 16 - (TL/kg)

Fruits	S	C	Jul. 1		Aug. 1		Sep. 1		Oct. 1		Nov. 1		Dec. 1		21
			1	2	1	2	1	2	1	2	1	2	1	2	
34 grape	W	1	12.000	13.000	18.000	18.000	18.000	18.000	18.000	18.000	19.000	19.000	13.000	13.000	25.000
	R	2	3.500	9.000	8.500	8.500	8.500	8.500	8.500	8.500	7.000	7.000	7.000	7.000	13.000
uzun farosau	W	1	15.000	16.000	23.400	23.400	23.400	23.400	23.400	23.400	19.500	22.100	29.900	32.500	32.500
	R	2	7.150	7.800	11.050	11.050	11.050	11.050	11.050	9.100	9.100	9.100	15.600	16.900	16.900
35 locuut yeni dunya yerli	W	1													
	R	2													
36 locuut yeni dunya duble	W	1													
	R	2													
37 apricot zerdali Tokaloolu	W	1	50.000	26.000											
	R	2	52.500												
38 apricot zerdali Sekerpare	W	1	45.000	42.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000
	R	2	20.000	18.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000
39 apricot kayisi	W	1	55.500	52.400	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000
	R	2													

Remarks : S : Type of Sales, W : Wholesale, R : Retail, C : Class

Annex 2 Field Survey of the Trend of Demand and Supply Vegetable and Fruit Wholesale Market

1. Finding in Germany

The self-sufficiency ratio of each EC/EFTA country is shown below. Germany and other countries, excluding Switzerland have attained a high ratio of self-sufficiency in vegetable production, and Spain, Greece and Italy have surpassed 100 percent in fruit production.

Self-Sufficiency Ratio of Fruit/Vegetables in EC/EFTA Unit:%

	Year	Vegetables	Fruit
Germany	1990	37.7	21.7
UK	1989	88.0	18.6
France	1989	88.8	85.6
Holland	1988	206.7	55.2
Belgium	1990	130.0	68.6
Spain	1990	105.3	109.8
Portugal	1989	121.0	90.3
Austria	1983	86.0	76.0
Greece	1989	139.4	121.0
Denmark	1988	79.7	48.7
Italy	1990	119.5	113.4
Swiss	1985	53.0	

Source: Agricultural Statistical Yearbook(EUROSTAT)

The German self-sufficiency ratio of fruit/vegetables is shown below. The overall self-sufficiency ratio of vegetables is a low 38 percent, particularly in fresh tomatoes at 4 percent. As a result domestic consumption is dependent on imports. In addition, the self-sufficiency ratio of apples is relatively high, peaches are all imported, and the self-sufficiency ratio for citrus fruits is zero percent.

Self-Sufficiency Ratio of Fruit/Vegetables in Germany(1989/90) Unit:1000 tons

	Production	Import	Export	Domestic Consumption	self-sufficiency (%)
Vegetables		3,848	328	5,649	37.7
Cauliflower	2,129	125	3	219	44.3
Fresh tomatoes	97	414	3	430	4.4
Processed tomatoes	19	622	35	587	0.0
Fruit					
Apples	669	632	61	1,240	54.0
Pears	24	147	14	157	15.3
Fresh peaches		243	2	241	0.0
Processed peaches		77	2	75	0.0
Oranges		608	20	24	0.0
Fresh grapes		271	6	265	0.0
Fresh fruits	877	4,470	1,309	4,038	21.7
Citrus fruits		3,514	1,277	2,237	0.0
Dried fruits		103	7	96	0.0
Nuts	11	295	69	237	4.6

Source: Agricultural Statistical Yearbook(EUROSTAT)

1.1 Import Trends of Selected Agricultural Products and Related Competitive

Environment

In this section, selected fresh fruits and vegetables are examined. The import trends of each article in relation to the countries of export, seasons and other related conditions are analyzed. The actual competitive environment in Germany concerning the import of those selected fresh fruits & vegetables are discussed.

(1) Tomato

The main countries from where tomato is imported are Spain, Italy, France, Canary Islands, Belgium, Holland, Turkey. Turkey's share is relatively very small. On the other hand, domestic production of tomato is also undertaken in Germany.

The earliest tomato imports to Germany are from Spain; where the season begins in September, continues until January - February. From November or December tomatoes of Canary Islands enter the German markets, through the month of May. Italian (tomato) products depict the longest import season to Germany between the spring time (end of April & beginning of May) and October. In this period, the German market is almost saturated embodying many products of different origins. Tomatoes of Belgium and Holland are imported beginning of April to July-August. Domestic products of Germany are also marketed in this period. Domestic tomatoes are usually seen in the market first in July till the end of September.

The penetration of domestic products into the market in this specific time period along with the presence of imported products from Belgium and Holland during the same time period result in a decrease in prices in the market for fresh fruits and vegetables in Germany. Belgium and Holland are among the major tomato producers in Europe. Importers mostly state that when the products of those two countries begin to be seen in the European markets, other countries' products lose their chance of compatibility. The import season of Belgium and Holland tomatoes is between May and August. In those seasons, these products coincide to relatively low prices, compared to the other imported products of different countries. Therefore the general prices on tomatoes in the market are pulled down.

The importers of tomato in Germany have not stated the "quantities" in general. They mostly keep this information confidentially. Only one importer has stated that he imports "2500 tons" of tomatoes per year, on the average.

The import figures obtained from the Hamburg Wholesale market show that Holland, Canary Islands and Spain are the top three countries from where the tomato is imported. Average unit price for one Kg of tomato import is 1.83 DM in 1993, where Turkish and Holland products are the cheapest imports with 1.47 DM and 1.54 DM unit price respectively in 1993.

(2) Broccoli

The most important supplier of broccoli for the German market is Italy. France and Spain are the following exporters of broccoli to the German markets. Germany also produces broccoli but in relatively small amounts.

The season for Italian broccoli is especially winter. But it continues until the end of spring. In the spring time products of Spain and France also penetrate into the market.

The importers have not stated any distinct value about the quantity imported. They prefer to keep it confidential. As of 1992, according to the most recent data available in the wholesale market for the selected product, (broccoli) had an average price of 2.47 DM per kg, Turkey and Hungary imports having the lowest unit price.

(3) Lettuce

The main suppliers of lettuce are Italy, France, Spain, Holland and Belgium in the import market of Germany. Lettuce is also produced in Germany. Lettuce is imported especially in the winter time. Import continues until the German products are harvested and provided for the domestic market.

Still the wholesale market information represents an average price of 1.97 DM on lettuce imports in 1993, of which Holland Spain and Belgium are seen as the top exporters of lettuce in 1993 while UK and Israel supply the cheapest unit price for imported lettuce.

(4) Radish

Radish consumption is not as high as that of other items in Germany. It is consumed in very small amounts in Northern Germany, while it is consumed relatively more in Southern Germany. Importers state that radish is mostly imported to meet the relevant demand from immigrants living in Germany, especially for Turkish people (as generally stated by the Turkish importers). The majority of the importers interviewed have stated that they import radish in insignificant amounts, while some of them have stated that they do not import radish at all.

The season for radish import is winter; starting in November and continuing until the end of April. The major supplier of German market for radish is Italy. One of the Turkish importers interviewed has stated that he imports radish from Turkey also. Turkish radishes begin to be imported in December, to stop at the end of the season in January.

(5) Melon

Spain, France, Italy and Israel are the main suppliers of melon. Turkey is also among the suppliers, though the amount of melon exports to Germany is significantly low.

Melon is mostly imported in the summer time. The first imports of melon are from Spain(Galia type), beginning from March. In the fifth month Italian melon also begins to be seen in the German markets. The main season for Italian and Spanish melons is between May and September. The season for Turkish melon starts in June or July, ends at the end of September.

On the contrary, melons imported from Israel are available all year round in the fruit and vegetable market of Germany regardless of the seasonal changes that all other products of import of the same kind suffer from. Accordingly "Israel melons" have become an exceptional case not only in the German market, but all over the world due to its sui-generis characteristics. The seed as well as the climate and soil it is produced on are the major factors enabling a continuous production and consequently exportation of Israel melon. As a result, almost all countries involved in melon production prefer to use Israel seed in their own production process. However, Turkish melon producers use "Galia" type of seed in general. Galia seed is a comparatively not durable one, as stated by the importers. When this production "disadvantage" is combined with the inexperience and lack of sufficient informative background portrayed by Turkish farming and farmers, Turkey is drawn to a position of incapable competition in the international markets, according to the importers. Though the climate in Turkey is still one of the most suitable ones for high quality melon production.

The quantity of melon imported to Germany varies from year to year. The most important factor determining the amount of melon imports is stated to be the weather conditions of the related year. Melon consumption increases when temperature arises in the country. Similarly, this direct relation between the temperature and consumption is also valid for water-melon.

In comparison to the previous two year's melon imports, the lowest average unit price in imports of melon was observed in 1993 with 0.83 DM per kg. Spain followed by Italy are the top two exporters of melon to Germany while melon imports from Hungary are cheaper than Italian imports on the average for the year in question.

(6) Kiwi Fruit

The main suppliers of Kiwi are Italy, France, Greece, New-Zealand, South Africa and some of the South American countries like Chile, among which the two giants of Kiwi production are Italy and New Zealand.

The season for Italian Kiwi starts in October and November(almost the same for Greek and French Kiwis), continues until February. Then New Zealand and South American Kiwis are mostly imported starting in June and ending in the middle of November. Therefore, through the year there are vast amounts of Kiwi in German market. The excess amounts of Kiwi supply therefore(higher than demand), pulls the prices down too low.

Consequently majority of the importers deem it unprofitable to produce and export Kiwi from Turkey considering the high amounts of production cost along with the export costs. The importers have emphasized that a probable export of Kiwi through Turkey will not be profitable for Turkish partners. Some of the importers interviewed have even stated that they do not import Kiwi anymore from anywhere due to the stated reasons above.

Italy followed by Greece are the top two Kiwi exporters to Germany. When all other Kiwi imports are taken into account the average price for one kg of is determined as 1.52 DM per kg.

(7) Plum

The suppliers of plum to the German market are Italy, Spain, France, Turkey and some of the South American countries like Chile and Argentina. However, Italy is the biggest supplier. Germany also produces plum in her own land.

The season for plum imports begins at the end of March to continue for the following four months. Italian products are usually imported at the end of April, ending in August. Domestic German plums which have the biggest share in the total consumption are marketed between the beginning of July and the end of August. Turkish plums are imported from the middle of August till the end of September, but in small amounts. When the season for the imports from the European countries ends, South American plums begin to be seen in the wholesale markets of Germany.

In 1993, the average price on plum imports is recorded to be 1.63 DM per kg. plum imports from the x eastern bloc countries have the lowest price pulling the average down, while the highest amount of imports are still from Italy with a unit price of 1.45 DM per kg as of 1993.

(8) Peach

Italy is stated to be the main supplier also of peach. All of the importers interviewed have stated that they import peach from Italy. The other suppliers of the German peach market are Spain, Greece and France. Turkish peaches also exist in the German market in proportionately smaller amounts.

The season for peach import begins in March with the Spanish and Morocco products. Spanish peaches continue to be imported until the end of August. Imports of Italian products begin in May and end at the end of July. Peach imports of France follow the Italian imports. July to September are the months for imports of Turkish products.

The same problem exists concerning the peach import; the importers do not state any distinct figure about the quantity they import. Only one of them interviewed has stated that he imports 100 tons of peach on the

average per year.

The available data concerning the product from the German wholesale market belongs to 1991. In 1991 the highest amount of peach imports have been from Italy, where as the cheapest unit price on imports has been bid on Bulgarian imports.

(9) Kaki

The consumption of kaki in Germany is in insignificant amount relatively to that of other fruits & vegetables which are subject to our research. In Germany there is no production of kaki at all. Parallel to the low level of consumption, import of this product is also realized in small amounts. However, the quantity imported has risen in recent years, it may have risen due to the considerably large demand of immigrants living in Germany. The majority of the importers interviewed do not import kaki at all. The main supplier of kaki is again Italy. Spain and South American countries are the following ones feeding the German market.

The season for imports of Italian kaki is Autumn; beginning at the end of September ending at the end of November. The same applies for the imports from Spain. Unlikely, South American peaches(most of countries of South America) enter the German market in the spring time.

There is no import of kaki from Turkey, due to the difficulties in picking up, packing etc. As stated by the importers, Turkish exporters do not give enough attention to those procedures which are vital for export.

(10) Pears

Italy, Spain, Holland, Belgium, France, Turkey, South American countries(especially Chile and Argentina) and South Africa are the suppliers of pears in the German import market. The biggest share still belongs to Italian products. Pears are also produced in Germany.

The season begins in the late-summer for European products. It begins in August continues until March. South American and South African pears begin to appear in the markets in February until the end of July. Thus, throughout the year, the German fresh fruits markets is filled with pears.

The 1993 data from the wholesale market shows an average price of 1.24 DM per kg of pear imports. As is the case in all the other related imported products, Italian imports are the top exporter even though Hungarian products are the cheapest.

Table 1 Import of Selected Agricultural Produce of Germany by Origin

	1991			1992			1993		
	Quantity (100 kg)	Value (1.000 DM)	Price/kg (DM/kg)	Quantity (100 kg)	Value (1.000 DM)	Price/kg (DM/kg)	Quantity (100 kg)	Value (1.000 DM)	Price/kg (DM/kg)
E.C.	4.491.464	890.370	1.98	4.713.354	813.323	1.73	3.746.659	616.258	1.64
Holland	2.901.115	592.378	2.04	2.862.841	494.221	1.73	1.977.545	343.452	1.74
Spain	514.321	90.091	1.75	708.224	108.100	1.53	710.237	108.900	1.53
Canary Island	560.555	104.517	1.85	729.131	117.737	1.61	461.586	85.203	1.85
Morocco	134.250	23.982	1.79	152.576	23.207	1.52	213.487	30.781	1.44
Belgium	643.406	123.593	1.92	675.397	119.309	1.77	555.634	90.116	1.62
France	246.626	49.085	1.99	250.218	45.139	1.80	275.056	44.102	1.60
Italy	179.869	33.839	1.88	207.297	44.727	2.16	223.717	34.036	1.52
Israel	31.510	5.886	1.87	29.020	4.891	1.58	16.048	2.757	1.72
Turkey	31.033	4.976	1.60	37.746	5.370	1.42	17.230	2.721	1.58
Canada	433	113	2.34	N/A	N/A	N/A	3.920	779	1.99
G.Britain	N/A	N/A	N/A	N/A	N/A	N/A	1.490	227	1.52
Senegal	1.041	198	1.90	1.129	183	1.62	1.129	183	1.62
Mikron	N/A	N/A	N/A	N/A	N/A	N/A	646	112	1.73
Albania	1.512	206	1.36	1.087	103	0.95	2.595	195	0.75
Bulgaria	19.780	15.678	7.93	3.492	278	0.80	1.385	175	1.26
Denmark	1.284	334	2.60	N/A	N/A	N/A	793	144	1.82
Dominican Rep.	318	135	4.25	497	204	4.10	N/A	N/A	N/A
Egypt	582	118	2.03	N/A	N/A	N/A	N/A	N/A	N/A
Finland	N/A	N/A	N/A	N/A	N/A	N/A	1.517	157	1.03
Greece	3.339	810	2.43	3.167	697	2.20	1.049	135	N/A
Niger	N/A	N/A	N/A	N/A	N/A	N/A	1.709	282	1.65
Nigeria	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Poland	4.123	384	0.93	5.847	672	1.15	N/A	N/A	N/A
Portugal	N/A	N/A	N/A	3.276	492	1.50	N/A	N/A	N/A
Romania	14.608	1.300	0.89	15.817	1.335	0.84	N/A	N/A	N/A
South Africa	587	141	2.40	N/A	N/A	N/A	N/A	N/A	N/A
USA	2.057	367	1.78	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	1.069	169	1.58	N/A	N/A	N/A	N/A	N/A	N/A
Tunisia	N/A	N/A	N/A	784	123	1.57	N/A	N/A	N/A
Total	5.300.392	571.525	1.08	5.696.088	822.453	1.44	4.478.606	744.817	1.66

Source: EUROSTAT

Table 1 Import of Selected Agricultural Produce of Germany by Origin

Lettuce	1991			1992			1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg	Quantity (100kg)	Value (1000DM)	price/kg (DM/kg)
Holland	393.579	87.785	2.10	321.481	96.663	3.01	330.384	64.134	1.94
Spain	3.869	637	1.65	6.676	1.308	1.96	290.360	52.448	1.81
Belgium	344.986	69.895	2.03	389.975	78.671	2.02	272.442	55.539	2.04
France	201.362	60.189	2.99	225.732	49.811	2.21	177.639	38.822	2.19
Italy	63.959	11.432	1.79	78.973	13.932	1.77	67.413	11.900	1.77
Turkey	N/A	N/A	N/A	N/A	N/A	N/A	2.388	1.402	1.68
G. Britain	N/A	N/A	N/A	N/A	N/A	N/A	1.181	127	1.08
Israel	N/A	N/A	N/A	N/A	N/A	N/A	655	106	1.62
Total	1,009,002	225,394	2.23	1,024,107	213,654	2.09	1,135,468	223,990	1.97

Source: EUROSTAT

Table 1 Import of Selected Agricultural Produce of Germany by Origin

Broccoli

1991

	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
S.Africa	42.282	9.843	2.33	45.720	10.641	2.33
Italy	37.468	9.980	2.66	40.600	10.905	2.69
Guatemala	9.837	2.237	2.27	25.212	6.080	2.41
France	7.020	3.493	4.98	9.114	3.241	3.56
Mexico	6.894	1.761	2.55	9.056	2.195	2.42
Belgium	12.867	3.355	2.61	8.309	2.371	2.85
Spain	8.465	3.072	3.63	7.658	1.582	2.07
Peru	998	249	2.49	9.551	1.611	2.46
Hungary	3.814	446	1.17	764	1.29	1.29
Holland	6.285	1.641	2.61	1.164	2.44	2.44
Ecuador	5.275	1.227	2.33	3.869	764	1.97
Chile	3.347	877	2.62	843	843	2.48
USA	1.457	384	2.64	2.611	752	2.88
Turkey	1.382	276	2.00	767	147	1.92
G.Britain	N/A	N/A	N/A	759	187	2.46
Taiwan	3.543	888	2.51	670	165	2.46
Canada	N/A	N/A	N/A	648	152	2.35
Total	152.823	37.142	2.43	179.044	44.281	2.47

Source: EUROSTAT

Table 1 Import of selected Agricultural Produce of Germany by Origin

Melon	1991			1992			1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
Guatemala	N/A	N/A	N/A	N/A	N/A	N/A	504	101	2.00
Venezuela	914	263	2.88	1.594	526	3.30	1.071	2.248	20.99
Senegal	549	161	2.93	1.541	396	2.57	1.419	339	2.39
Honduras	2.582	546	2.11	1.530	369	2.41	4.153	898	2.16
Iran	5.270	407	0.77	7.161	599	0.84	6.523	409	0.63
Israel	24.856	5.853	2.35	27.897	5.696	2.04	6.523	409	0.63
S. Africa	7.330	1.294	1.77	7.245	1.221	1.69	8.427	1.550	1.84
Costa Rica	6.317	1.151	1.82	11.731	2.249	1.92	11.716	2.279	1.95
Hungary	13.357	540	0.40	37.713	1.320	0.35	20.785	575	0.28
Greece	93.917	5.398	0.57	109.847	6.170	0.56	23.214	1.178	0.51
Holland	4.189	853	2.04	2.304	561	2.43	24.247	4.000	1.65
Brazil	57.323	8.663	1.51	56.766	8.074	1.42	37.592	8.050	1.61
France	94.671	16.439	1.74	63.421	10.988	1.73	54.409	7.466	1.37
Turkey	147.019	8.431	0.57	156.275	8.498	0.54	66.754	4.961	0.74
Italy	307.664	37.376	1.21	481.165	36.742	0.76	318.893	14.955	0.47
Spain	843.620	77.044	0.91	938.187	95.733	1.02	841.090	66.317	0.79
Argentina	N/A	N/A	N/A	693	105	1.52	N/A	N/A	N/A
Bulgaria	5.115	172	0.34	N/A	N/A	N/A	N/A	N/A	N/A
chile	971	203	2.09	N/A	N/A	N/A	N/A	N/A	N/A
Dom. R.P.	370	110	2.97	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	1.196	178	1.49	515	103	2.00	N/A	N/A	N/A
Morocco	3.433	481	1.40	N/A	N/A	N/A	N/A	N/A	N/A
Portugal	2.105	270	1.28	2.186	382	1.75	N/A	N/A	N/A
Total	1.834.815	157.181	0.91	1.916.247	180.931	0.94	1.474.635	120.853	0.82

Source: EUROSTAT

Table 1 Import of Selected Agricultural Produce of Germany by Origin

	1991			1992			1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
Peach									
France	76.220	24.185	3.17				87.469	19.038	2.18
Italy	986.728	182.914	1.87				1.133.843	173.464	1.53
Greece	274.436	40.711	1.48				126.813	19.483	1.54
Spain	118.383	40.949	3.46				N/A	N/A	N/A
Turkey	11.089	2.062	1.86				6.895	2.591	3.76
Bulgaria	6.105	468	0.77				9.210	3.232	3.51
S.Africa	1.766	727	4.12				3.123	2.17	2.19
Chile	12.387	4.729	3.82				1.587	1.587	5.08
Total	1.491.510	297.239	1.99				1.499.908	245.062	1.63
Peach Juice									
France	57.038	21.037	3.69						
Italy	1.179.917	253.812	2.15						
Greece	306.014	41.608	1.36						
Spain	64.013	18.596	2.91						
S.Africa	4.031	1.340	3.32						
Chile	31.124	10.769	3.46						
Belgium	N/A	N/A	N/A						
Holland	N/A	N/A	N/A						
USA	N/A	N/A	N/A						
Total	1.543.247	347.429	2.25						

Source: EUROSTAT

Table 1 Import of Selected Agricultural Produce of Germany by Origin

	1991			1992			1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
USA	442	163	3.69	817	211	2.58	671	179	2.67
Belgium	975	146	1.50	N/A	N/A	N/A	1.700	177	1.04
Bulgaria	41.507	3.247	0.78	N/A	N/A	N/A	1.894	114	0.60
Israel	1.622	434	2.68	1.972	288	1.46	1.938	373	1.92
Holland	605	113	1.87	N/A	N/A	N/A	3.021	875	2.90
Austria	5.195	726	1.40	N/A	N/A	N/A	6.179	963	1.56
Czechoslovakia	28.583	2.050	0.72	N/A	N/A	N/A	7.190	339	0.47
Turkey	17.822	3.163	1.77	9.605	1.898	1.98	7.887	1.957	2.48
Chile	24.551	6.718	2.74	26.029	6.886	2.65	13.882	3.966	2.86
S.Africa	19.499	5.330	2.73	19.110	5.422	2.84	15.791	4.801	3.04
Poland	34.451	2.692	0.78	N/A	N/A	N/A	19.578	936	0.48
Romania	43.305	4.508	1.04	10.465	663	0.63	21.229	1.817	0.86
France	30.101	4.846	1.61	61.073	3.789	0.62	40.032	5.817	1.45
Hungary	91.695	9.716	1.06	16.763	1.120	0.67	50.524	3.539	0.70
Spain	62.484	18.107	2.90	57.272	12.331	2.15	72.149	9.158	1.27
Italy	155.272	31.306	2.02	133.110	18.998	1.43	113.487	16.476	1.45
Argentina	N/A	N/A	N/A	670	195	2.91	N/A	N/A	N/A
Greece	1.192	228	1.91	N/A	N/A	N/A	N/A	N/A	N/A
Yugoslavia	7.138	609	0.85	N/A	N/A	N/A	N/A	N/A	N/A
Total	1.543.247	347.429	2.25	N/A	N/A	N/A	1.499.908	245.062	1.63

Source: EUROSTAT

Table 1 Import of Selected Agricultural Produce of Germany by Origin

	1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
France	390.017	53.486	1.37
Belgium	53.486	5.853	1.09
Holland	75.929	9.432	1.24
Italy	595.404	76.777	1.29
Spain	94.737	10.682	1.13
S.Africa	301.986	37.516	1.24
USA	12.366	2.428	1.96
Chile	121.000	14.987	1.24
Argentina	175.371	23.113	1.32
Turkey	4.643	573	1.23
Hungary	2.817	174	0.62
Total	1.596.102	197.691	1.24
Kiwi			
	1993		
	Quantity (100kg)	Value (1000DM)	Price/kg (DM/kg)
France	26.288	3.516	1.34
Holland	1.513	274	1.81
Italy	710.943	77.864	1.10
Greece	64.262	13.497	2.10
Spain	1.580	208	1.32
Chile	31.289	5.914	1.89
Total	1.123.824	170.540	1.52

Source: EUROSTAT

1-2. Case Study of Hamburg Wholesale Market

An overview of the Hamburg Wholesale Fruit and Vegetables Market for the selected agricultural produce is presented below to enable an understanding of the general situation of fruit and vegetables in the past three months in relation to earlier explanations.

(1) May 1994

The market is usually more active on the weekends. In the first week of the month demand is especially high on strawberry. First class quality Spain peaches are demanded at a satisfactory level. Pears with stable price reach satisfactory sales level. As the demand for peach is high, prices of the peach keeps to be compelling. Prices of lettuce decreases. In the second week of May the fruit and vegetables market has not experienced striking price wise changes over all. The pricing and amounts of sales of the related goods follow the same trend. Especially Spanish peach imports are mostly demanded. Both European and South American Kiwis are seen in the market. In terms of overseas stocks, there is a decrease in pear imports. In the last week of May in the market sales continue to be alive. Sales of peach fall into the usual pattern, still consumed at similar amounts. Nectarine - due to quality - has a large price margin but it keeps its position as a desirable product in the market for the season. For plum, demand is low, price are steadily decreasing. With the introduction of Cape goods in the market, the supply of pears has increased. Kiwi, despite the quality of Chile products, is under price pressure since both Italian and New Zealand products are simultaneously in the market. There is an excess supply of Kiwis in the market in May.

Demand for lettuce is met easily by the entry of North German products of high quality round and colored lettuce. Supply of North German ice lettuce continues to be limited due to the weather conditions.

(2) June 1994

In this period, Arm King type Italian peach-Nectarines are forced into the market. Amount of peach sales increase because of the price pressure due to great demand. The mostly demanded types of peaches are especially Steigen B and Schalenc. All quality(all A, B and C types).

Towards the end of the week, unexpected movements appear in the market. While there is an insufficient supply of strawberry, sales of peaches still continue at the same level, but not satisfactory enough. Contrary to the usual conditions in the market, Italian imports maintain their lowest level by the end of the month even though other imported and domestic goods are abundant in the market. The Greek peach and nectarines, though of lower quality than the Italian products seem to increase their market share. Plums are not desired as much.

Also observed in this month, is the entry of new products coming from

Turkey and Greece. Although these products are weak in the market, they possess influential power as they increase the overall supply and pull the prices down. Goods of Southern Germany are mostly preferred in this season. When melon is in question mostly Spanish, Italian, Greek and Turkish goods are seen in the market.

(3) July 1994

Peach is still available in the market. Sales of nectarine have comparatively decreased. French Guyot pear exist in the market. Demand for well developed round lettuce is met with difficulty. Because of the drops in production, North German ice lettuce is provided in small amounts, still maintaining its demand stability. In the beginning of the month sales are relatively low. However, typical summer crops such as peach, nectarine and grape encounter a price decrease due to abundance in the market. Despite the low prices of plums, sales of the product are not found satisfactory. Nectarine sales are stable when compared to other peaches but it is harassing the stocks.

Overall, lettuce stocks are created by domestic supply, which is only affected by seasonal changes not undergoing major changes in prices for that reason.

1-3. Price Trends of Selected Products and Reasons of Price Differentiation

(1) Factors determining the prices

Prices in the fresh fruits & vegetables market vary a lot in Germany. "Prices change everyday" according to one of the fresh fruits & vegetables importer in Hamburg. He states that it depends on actual supply and demand patterns. Another importer says that it depends on the crop and the actual conditions of the German market.

The main factor determining prices of fresh fruits & vegetables is stated to be the "quality". All of the importers agree on this. Other factors like origin or season are claimed to be irrelevant. As it is seen through the information above, there is no distinct season for any of the products in which a certain product is necessarily unavailable; all of products exist in the market all year round. Origin is an indirect factor reflected through the quality factor affecting the prices. Some countries who have the biggest shares in the German imported fresh fruits & vegetables market, Spain and Italy, already export very high quality products. Thus, the origin determines price through quality.

(2) Reasons for differences in prices

Price differentiation regarding the origin of the product occur as a result of a combination of various stages from the first steps of production till the final stages of export. The factors determining the quality and thus affecting the price consist of all steps of production

and marketing process, from the kind of seed used to the transportation. Weather conditions of the related year is another factor affecting the quality of the crop, consequently the price differentiation.

Therefore the main reason behind the relatively low prices of Turkish products is low quality, according to the importers. Low quality level stem from the deficiencies in production, packing and transportation processes in Turkey. Inefficient state policies about the standard of import and export activities have also been emphasized, especially by the Turkish importers in Germany, to point out some of the deficiencies of the Turkish import and export activities.

(3) Basis of competition in the fresh fruit & vegetables market

"Price and quality" are stated to be the most important factors determining the base of competition in the fresh fruits & vegetables market in Germany. The majority of the importers have stated that these two factors determine the basis together, while some of them rate price factor as the most important one and the quality the second.

According to the importers quantity has no function at all as basis of competition. However, brand can be the following basis after price and quality, for several kinds of fruits and vegetables.

1-4. Legal and Institutional Constraints/Incentives Affecting the Competitive Environment

Legal and institutional framework of trade activities realized in Germany (export or import) have been determined by EC rules. Fresh fruits & vegetables trade is also dependent upon these rules. Thus, any import/export activity realized with the countries out of EC is obliged to EC's standards, quotas, controls and subsidies of EU.

(1) Customs and Tariffs

No custom duties or tariffs are applied for fresh fruit and vegetables, except for the ones applied to several articles in certain seasons. The exceptional items and the applied custom duties accordingly are stated below;

Items	Period	Rate(%)
Melon	01.11-31.03	6.5
	rest of the year	11.0
Water melon	16.06-31.10	11.0
Egg plant	01.01-01.04	9.0
Pumpkin	01.03-30.11	16.0
Grape	01.01-30.04	0.0
	01.05-17.06	18.0
	18.06-17.07	0.0
	18.07-31.10	22.0
	31.10-01.01	18.0

Except for those articles, all fresh fruits and vegetables are imported without any custom or tariffs. The rates applied are determined in EC every month or every fifteen days.

This tariff does not include additional taxes which are applied in case of low prices. These taxes will be examined in the following sections.

(2) Quotas

EC quotas are applicable according to seasons. If the season is the one of domestic production of the concerned country, then import quotas are applied. Excluding the seasons determined for each article individually, fresh fruits & vegetables are imported to Germany without quotas.

(3) Tax credits

For each kind of food imported to Germany, 7% of VAT is applied.

(4) Price control

Different reference prices are applied for each article. In case of low prices of the items imported, additional custom duties together with special added tax are implemented in order to protect the domestic market, so the producer.

Price control is also dependent on the season. It is applied on specific seasons for each product.

(5) Sanitary standards

All kinds of fresh fruits and vegetables imported to Germany, quality control is applied. In this process, consistence with the sanitary standards is controlled. It is the importer who is responsible for the controlling process. The quality of the product and packaging are controlled at the place of destination.

(6) Subsidies

Government subsidies are only available for export activities to the Third World Countries from EC. Unlikely there are no subsidies for import.

A different kind of subsidy is given to the domestic market, which is awarded to the local farms during the production process.

1-5. Quality Requirement of the Market

The fresh fruit and vegetables market in Germany requires top quality products due to the existing competitive environment in the related sector and the restrictions of EC. Thus, to assure high quality, all steps of production and marketing processes should be achieved according to the

determined criteria of the EC. From cultivation to transportation, all steps should be controlled. These criteria have brought a kind of "perfectionist" demand to the market actually.

A product coming to the German market should be a top qualified one with a very good shape determined by the EC standards. Appropriateness of packaging in line with the restrictions of EC is another requirement. For instance, recyclable materials should be used for packaging. Unavoidably, price is one of the major factors to place a product in the market. Besides the determining feature of the free market, there are also EC restrictions active regarding the price. This has been already examined above, in the "price control" section.

Thus stability on the exclusively qualified product with a reasonable price should be provided.

These all show the level of awareness in the German fresh fruit and vegetables market of high quality and EC standards. Thus people who will be engaged in this sector- whatever the step is, whether production, packaging or marketing- should also be aware of requirements.

1-6. Consumer Demand for Turkish Agricultural Products in Terms of Taste and Seasonality

There is no differentiation among the expectations regarding the demand from different countries. The demand is determined through the market mechanism and its current requirements depending on the goods that are already on the market. A new good to enter the market regardless of its origin should compete with the ones that are already in the market.

Seasonality is one of the most important variable in determining the conditions of the German fresh fruit & vegetables market. However, this concern has mostly been overruled in Germany due to the continuous flow of goods from all over of the world. When the season finishes in the north, goods of the south begin to flow to Europe in accordance to the demand. For instance, when the Kiwis of Italy are completely harvested and consumed in the European markets, New Zealand Kiwis begin to be imported. Thus the domestic market in Germany does not encounter a lack of supply of Kiwis or any other likely product. Accordingly the price does not vary as is the case previously explained.

Exporter and importer companies are suffering from the lack of proper and exact information about international markets. Companies do not supply vegetables in desirable quality, quantity and in time, sometimes products do not reach to the importer by domestic transportation companies on time, which causes the loss in quality and price in the market.

1-7. Suggestions of Fresh Fruits & Vegetables Importers About the Import of Fresh Fruit and Vegetables from Turkey

In general they state that the fresh fruits & vegetables market has already been filled up with many goods from many countries. The demand for fresh fruits and vegetables is mostly satisfied by goods imported from South European countries like Italy and Spain, especially for the goods subject to the research. Instead of those goods, pepper (esp.type of "California Wonder"), early water-melon, melon (type:"Futuro" and "Galia"), eggplant, cherry, kidney beans, maize and pumpkin (green one) are recommended to be imported to Germany.

Although the importers suggest to import canned fresh fruits & vegetables to the German market, they do not recommend to import fruit juices, due to the current conditions of the market. They mostly state that the new brands of fruit-juices to be imported to German market will not have too much chance to compete with the already existing brands.

The importers, who have been interviewed also emphasize the importance of "green-houses" in the production of fresh fruits & vegetables that will be imported from Turkey. Because seasonal advantage is one of the most important points regarding the import of fresh fruits & vegetables to European Countries. Turkey is directly faced with this "season" problem, since she has almost the same seasons of production with the existing agricultural producer in Europe, especially with the two giants of European fresh fruits & vegetables market; Italy and Spain. Thus in order to compete with them, production ought to be widened to out of seasons too. This is one of the major recommendations in relation to fresh fruits & vegetables in Germany.

Additionally, obligatory standards of EC about quality, packaging, etc. should be followed, according to the opinions of importers.

Annex 3 Enterprises Active in Turkey

I. Legal entities established in Turkey

- ① details of business ② investing companies, () ratio of investment
③ date of commencing business activity ④ capital
⑤ number of employees, () employees dispatched from Japan

1. Anadolu Isuzu Otomotiv Sanayi ve Ticaret A.Ş

- ① Assembly and selling of truck and bus chassis
② Isuzu Automobil (15) Itochuu Corporation (8) Turkey (77)
③ 86.4 ④ 184.6 billion TL ⑤ 400 (3)

2. Itochu Tekstil Kimya Ltd. Şti.

- ① Selling of dyes and textile chemicals such as auxiliary agents
② Itochu Corporation (100)
③ 93.1 ④ 6,096 million TL ⑤ 8 (0)

3. NTTI-BILVAK Technical and Consulting Services A.Ş.

- ① Banking system development for banks
② NTT-International (51) Turkey (49)
③ 92.12 ④ 500 thousand dollars ⑤ 11(1)

4. TAT Tohumculuk A. Ş.

- ① Production and selling of seeds and seedlings
② Kagome (29) Sumitomo Corp. (10) Kaneko Seed (10) Turkey (51)
③ 87.9 ④ 5 billion TL ⑤ 15 (0)

5. TAT Konserve Sanayii A. Ş.

- ① Production and selling of processed tomato products
② Kagome (11) Sumitomo Corp. (4) Turkey (85)
③ 87.6 ④ 450 billion TL ⑤ 360 (0)

6. Türk Sakura Bank A.Ş.

- ① Banking in general
② Sakura Bank (96.28) Turkey (3.72)
③ 85.8 ④ 124.5 billion TL ⑤ 77 (4)

7. ÇBS-Shinto Boya Kimiya Tiyareti A. Ş.

- ① Selling of paint
② Shinto Paint (40) Itochu corp. (10) Turkey (50)
③ 94.4 ④ 6 billion TL ⑤ 4 (0)

8. Cosmat Dijital Hizmetler Ticaret A.Ş.

- ① International communications and data transmission service
② Sumitomo Corp. (15) Other (10) Turkey (75)
③ 91.11 ④ 25 billion TL ⑤ 12 (0)

9. Nissan Otomotiv A.Ş.

- ① Import and selling of Nissan cars
② Sumitomo Corp. (94.5) Turkey (5.5)
③ 93.12 ④ 160 billion TL ⑤ 35 (1)

10. Tomen Tekstil Makinalari Ticaret A.Ş.

- ① Import and domestic selling of weaving machines
② Tomen Tekstil Machine (59.98) Tomen corp. (20) Turkey (20.02)
③ 90.10 ④ 1.12 billion TL ⑤ 55 (1)

11. Toyotasa Toyota Sabanci Automotive Industry & Trade A.Ş.
- ① Assembly and selling of cars
 - ② Toyota Automobil (40) Mitsui & Co. (10) Turkey (50)
 - ③ 90.7 ④ 5,400 billion TL ⑤ 800 (15)
12. Şark Sigorta T. A.Ş.
- ① Nonlife insurance
 - ② Tokyo Marine & Fire Insurance (10) Other (5.82) Turkey (84.18)
 - ③ 88.8 ④ 45 billion TL ⑤ 280 (0)
13. Enka Teknik A.Ş.
- ① Engineering
 - ② Toyo Engineering (10) Turkey (90)
 - ③ 87.12 ④ 45 billion TL ⑤ 50 (1)
14. Türk Nippon Sigorta A.Ş.
- ① Nonlife insurance
 - ② Nippon fire & Marine Insurance (51) Turkey (49)
 - ③ 91.10 ④ 25 billion TL ⑤ 63 (1)
15. Anadolu-Japan Turizm A.Ş.
- ① Possession and operation of Swiss hotel The Bosphorus
 - ② Nippon-Turkey Urban Develop. Invest. (85.2) Other (12.17) Turkey (2.63)
 - ③ 87.12 ④ 414.4 billion TL ⑤ 13 (8)
16. FANUC Servis ve Ticaret Ltd. Şti.
- ① Selling and maintenance of CNC, robots and robot machines
 - ② FANUC (100)
 - ③ 94.6 ④ 8 billion TL ⑤ - (1)
17. BRISA Bridgestone Sabanci Lastik Sanayi ve Ticaret A.Ş.
- ① Production and selling of tires
 - ② Bridgestone (36) Turkey (64)
 - ③ 88.11 ④ 1063 billion TL ⑤ 1334 (12)
18. Anadolu Honda Otomobilcilik A.Ş.
- ① Import, production and selling of four-wheeled cars
 - ② Honda-gikenn (50.0) Turkey (50.0)
 - ③ 92.4 ④ 1,000 billion TL ⑤ - (2)
19. Honda Anadolu Motosiklet Üretim ve Pazarlama A.Ş.
- ① Import, production and selling of autobycicles
 - ② Honda-gikenn (51.0) Turkey (49.0)
 - ③ 95.4 ④ 300 billion TL ⑤ 58 (2)
20. Generali Sigorta A.Ş.
- ① Nonlife insurance
 - ② Mitsui M. & F. Insurance (10) Turkey (90)
 - ③ 90.1 ④ 20 billion TL ⑤ 89 (1)
21. Mitsui Dış Ticaret Ltd. Şti.
- ① Trading company
 - ② Mitsui & Co. (100)
 - ③ 88.3 ④ 380 million TL ⑤ 31 (6)
22. YKK Metal ve Plastik Urunleri Sanayi ve Ticaret A.Ş.
- ① Production and selling of fasteners
 - ② YKK (100)
 - ③ 91.11 ④ 70 billion TL ⑤ 130 (6)

23. Yazaki Sabancı Otomotiv Kablo Sanayi ve Ticaret A.Ş.

- ① Wire-harness of cars
- ② Yazaki-Sogyo (75) Turkey (25)
- ③ 95.6 ④ 672 billion TL ⑤ - (8)

24. Ege Plantek Çiçekçilik Ltd. Şti.

- ① Production and selling of seeds and seedlings of high-quality flowering plants
- ② Daiichi-Engel (82.2) Mitsui-Fudousan (7.8) Mitsui & Co. (10.0)
- ③ 92.3 ④ 44.9 billion TL ⑤ 60 (2)

25. Sony Eurasia Pazarlama A.Ş.

- ① Import, selling and after-sale service of Sony products
- ② Sony (100)
- ③ 90.3 ④ 58.54 billion TL ⑤ 27 (1)

26. Mazda Motor Türkiye A.Ş.

- ① Import and selling of Mazda cars
- ② Itochu Corp. (50) Turkey (50)
- ③ 96.1 ④ 3 million \$ ⑤ 50 (2)

[Remark] Borrowed from "General Survey on Enterprises Active Abroad, '95 (by Country)", Tokyo Keizai Weekly, with some additions.

II. Branch of Japanese enterprises

1. Mitsubishi Corporation	Istanbul Main Branch & Ankara Branch
2. Sumitomo Corporation	Istanbul Main Branch & Ankara Office
3. Itochu Corporation	Istanbul Main Branch & Ankara Office
4. Marubeni Corporation	Istanbul Main Branch & Ankara Office
5. Nissho Iwai Corporation	Istanbul Main Branch & Ankara Office
6. Tomen Corporation	Istanbul Main Branch & Ankara Office

III. Resident office of Japanese enterprises

1. The Bank of Tokyo-Mitsubishi, Ltd.	Istanbul Representative Office
2. The Sumitomo Bank, Ltd.	Istanbul Representative Office
3. Nichimen Corporation	Istanbul Liaison Office
4. Kanematsu Corporation	Istanbul Liaison Office
5. Toyota Tsusho Corporation	Istanbul Liaison Office
6. Taichi Company Ltd.	Istanbul Representative Office
7. Sumitomo Marine & Fire Insurance Co. Ltd.	Istanbul Representative Office
8. Tokyo Marine & Fire Insurance Co. Ltd.	Istanbul Liaison Office
9. Mitsui Marine & Fire Insurance Co. Ltd.	Istanbul Representative Office
10. Komatsu Ltd.	Istanbul Liaison Office
11. Kajima Corporation	Istanbul Liaison Office
12. Hazama Corporation	Istanbul Liaison Office
13. Matsushita Electric Industrial Co. Ltd.	Istanbul Liaison Office
14. NEC Co. Ltd.	Ankara Liaison Office
15. Murata Machine Co. Ltd.	Istanbul Liaison Office

16. Hitachi-Kenki Co. Ltd.	Istanbul	Liaison	Office
17. Shimadu Co. Ltd.	Istanbul	Liaison	Office
18. Juki Co. Ltd.	Istanbul	Liaison	Office
19. Dai-Ichi Seed Co. Ltd.	Turkey	Liaison	Office

IV. Project office of Japanese Enterprises

1. Hazama Corporation	Istanbul Project
2. Ishikawajima-Harima Heavy Industries Co. Ltd.	Golden Horn Bridge Project Office

Annex 4 Dispatch of Japanese Short-Term Experts

No.	NAME	FIELD	PERIOD
1	Mr.Shigekazu SUGAHARA	Agricultural Engineering	Jan.29,1990 - Feb.19,1990
2	Mr.Kenichi YAMAGUCHI	Fruit trees	Jan.29,1990 - Mar.28,1990
3	Mr.Tomoo FUKAZAWA	Control of construction	Apr. 1990 - Sep. 1990
4	Mr.Takatoshi KOSUGE	Irrigation	Sep.12,1990 - Sep.24,1990
5	Mr.Hiroyuki SHINOGI	Irrigation	Sep.12,1990 - Sep.24,1990
6	Mr.Toshio MIZUGUCHI	Upland Crops	Sep.17,1990 - Jun.11,1991
7	Dr.Katsuhiko YABE	Irrigation	Oct.20,1991 - Nov.20,1991
8	Mr.Masao YOSHIDA	Video Production	Apr.28,1992 - May.11,1992
9	Dr.Katsuhiko YABE	Irrigation	Jul.31,1992 - Aug.16,1992
10	Mr.Tsuyoshi AMEMIYA	Fruits	Jan. 7,1993 - Jan.17,1993
11	Dr.Masayuki ODA	Vegetables	Jan.17,1993 - Jan.27,1993
12	Dr.Motomu KARAHASHI	Farm Mechanization (Upland Crops)	Mar. 9,1993 - Mar.24,1993
13	Dr.Torahiko TANIGAWA	Irrigation	Aug.24,1993 - Sep.13,1993
14	Dr.Motomu KARAHASHI	Farm Mechanization (Upland Crops)	Oct.29,1993 - Nov.21,1993
15	Mr.Mitsuho SUGIMOTO	Farm Mechanization (Vegetables)	Oct.29,1993 - Nov.21,1993
16	Mr.Mitsuho SUGIMOTO	Farm Mechanization (Vegetables)	Mar.19,1994 - Apr.10,1994
17	Mr.Hiroyuki SHINOGI	Irrigation	Jun.13,1994 - Jun.24,1994
18	Dr.Shigeki ISHIDA	Farm Mechanization (Upland Crops)	June 17,1994 - Jul.10,1994
19	Dr.Torahiko TANIGAWA	Irrigation	Aug.26,1994 - Sep.17,1994
20	Mr.Yoshiaki UMEMIYA	Soil & Fertilizer	May 16,1995 - June 7,1995
21	Mr.Nobuo KAJINO	Machine Operation (Irrigation Pump)	May 16,1995 - May 31,1995
22	Mr.Akihiko MATSUYAMA	Machine Maintenance (Irrigation Pump)	May 16,1995 - May 31,1995
23	Mr.Yoshiaki UMEMIYA	Soil & Fertilizer	Oct. 3,1995 - Oct.11,1995

Annex 5 Dispatch of Japanese Mission

No.	N A M E	PERIOD
[Implementation Survey Team]		
1	Mr.Yutaka SASAKI (Senior Assistant to the Managing Director; Agriculture, Forestry and Fisheries Development Study Department, JICA) and other two persons	(Feb. 3, 1990~ Feb. 15, 1990)
[Implementation Survey Team]		
2	Mr.Iwao YAMASHITA (Senior Assistant to the Managing Director; Agriculture, Forestry and Fisheries Development Study Department, JICA) and other one person	(Aug. 28, 1990~ Sep. 7, 1990)
[Implementation Survey Team]		
3	Mr.Toshio SAGAWA (Managing Director; Agriculture, Forestry and Fisheries Development Study Department, JICA) and other two persons	(Jun. 6, 1991~ Jun. 16, 1991)
[Advisory Team]		
4	Mr.Shoji NAKAJIMA (Chief; Investment Sect., Development Cooperation Div., Economic Cooperation Bureau, MFA) and other two persons	(Sep. 29, 1991~ Oct. 10, 1991)
[Implementation Survey Team]		
5	Mr.Hidero MAKI (Senior Vice-President, JICA) and other three persons	(Apr. 6, 1992~ Apr. 19, 1992)
[Marketing and Farm Management Pre-Survey Team]		
6	Mr.Koichiro KATSURAI (Development Specialist, JICA) and other three persons	(Mar. 23, 1992~ Apr. 19, 1992)
[Consultation Survey Team]		
7	Mr.Yoshiomi HASE (Director, Pomology Division, Fruit tree Research Station, MAFF) and other five persons	(Mar. 13, 1993~ Mar. 25, 1993)
[Consultation Survey Team]		
8	Mr.Hideaki KUMAZAWA (Director General, Foreign Affairs Department, Economic Affairs Bureau, MAFF) and other five persons	(Apr. 4, 1994~ Apr. 15, 1994)
[Marketing and Farm Management Survey Team]		
9	Mr.Shigeru IWASAKI (Resercher, System Science Consultants Co.) and other four persons	(Jul. 16, 1994~ Aug. 21, 1994)
[Consultation Survey Team]		
10	Mr.Mituhiko OTA (Director of Financial Cooperation Division, Agricultural Development Cooperation Dept., JICA) and other three persons	(Nov. 18, 1995~ Nov. 26, 1995)
[Consultation Survey Team]		
11	Mr.Masahito SUZUKI (Deputy Director of International Cooperation Planning Division, Foreign Affairs Department, Economic Affairs Bureau. MAFF) and other two persons	(May 11, 1996~ May 25, 1996)

Annex 6 Turkish Counterpart Training in Japan

No.	SUBJECT	NAME	PERIOD
1	Observation Tour	Mr.Hüsnü POYRAZ	Jun.27,1990 - Jul. 6,1990
2	Observation Tour	Mr.Nazmi ÖNDER	Jun.27,1990 - Jul. 6,1990
3	Observation Tour	Mr.Taner KIVANC	Jun.27,1990 - Jul. 6,1990
4	Observation Tour	Mr.Mahmut GÜL	Jun.24,1990 - Jul. 6,1990
5	Observation Tour	Mr.S.Sami SEZGİN	Jun.24,1990 - Jul. 6,1990
6	Observation Tour	Mr.Murat YURDABAYRAK	Jun.24,1990 - Jul. 6,1990
7	Upland Crops	Mr.Nabi YILDIZ	Sep. 3,1991 - Nov.28,1991
8	Vegetables	Mr.Recep ERÜN	Sep. 3,1991 - Nov.28,1991
9	Irrigation	Mr.Muhsin KUL	Sep. 3,1991 - Nov.28,1991
10	Fruit trees	Mr.Hamza KUZDERE	Sep. 3,1991 - Nov.28,1991
11	Observation Tour	Mr.Fahri HARMANŞAH	Nov.14,1991 - Nov.28,1991
12	Observation Tour	Dr.Filiz TEKELİ	Nov.14,1991 - Nov.28,1991
13	Observation Tour	Mr.Ahmet ŞENLİ	Nov.14,1991 - Nov.28,1991
14	Vegetables	Mr.Metin YEŞİLOĞLU	Aug. 4,1992 - Oct.29,1992
15	Vegetables	Mr.Mehmet ÇELİK	Aug. 4,1992 - Oct.29,1992
16	Upland Crops	Mr.Halil POLAT	Aug.18,1992 - Oct.29,1992
17	Irrigation	Mr.Erdal İÇNELİ	Sep. 1,1992 - Oct.29,1992
18	Upland Crops	Mr.Mukadder KUZUCU	Sep. 1,1992 - Nov.17,1992
19	Observation Tour	Mr.Naci Doğan TUYLUCU	Oct. 8,1992 - Oct.29,1992
20	Observation Tour	Dr.Feridun GÜLER	Oct. 8,1992 - Oct.29,1992
21	Observation Tour	Mr.H.Ali KELEŞ	Oct. 8,1992 - Oct.29,1992

Annex 6 Turkish Counterpart Training in Japan

No.	SUBJECT	NAME	PERIOD
22	Observation Tour	Mr.Selahattin KORKUT	Sep.25,1993 - Oct. 7,1993
23	Observation Tour	Mr.Yunus TANRIVER	Sep.25,1993 - Oct. 7,1993
24	Observation Tour	Mr.Yasar ŞAHİN	Sep.25,1993 - Oct. 7,1993
25	Vegetables	Mr.Nail BIYIK	Sep.25,1993 - Dec. 9,1993
26	Vegetables	Mr.Tamer SERMENLİ	Sep.25,1993 - Dec. 9,1993
27	Vegetables	Mr.İsmail TOSUN	Sep.25,1993 - Dec. 9,1993
28	Fruit trees	Mr.Süleyman ŞİMŞEK	Sep.25,1993 - Dec. 9,1993
29	Observation Tour	Dr.Şenol ERDOĞAN	Sep.26,1994 - Oct.13,1994
30	Observation Tour	Mr.Cemal UYSAL	Sep.26,1994 - Oct.13,1994
31	Observation Tour	Mr.Cengiz KOÇ	Sep.26,1994 - Oct.13,1994
32	Vegetables	Mr.Bekir RÜZGAR	Aug.24,1994 - Dec.20,1994
33	Fruit trees	Mr.Namık K.BALKI	Sep.7,1994 - Dec.20,1994
34	Observation Tour	Dr.Orhan ASLAN	Sep.12,1995 - Sep.28,1995
35	Observation Tour	Mr.Kenan AYLA	Sep.12,1995 - Sep.28,1995
36	Observation Tour	Mr.Mehmet Nedim YILMAZ	Sep.12,1995 - Sep.28,1995
37	Vegetable	Mr.Nihat PALAZ	Aug.24,1995 - Dec.19,1995
38	Fruit tree	Mr.Kemal KAYMAK	Sep.12,1995 - Dec. 7,1995

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