SUNFLOWER PRODUCTION, TRADE AND CONSUMPTION WORLDWIDE

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Mr. Chairman, Ladies and Gentlemen,

I consider it a great honour to be invited as one of the speakers during the opening session of the 9th International Sunflower Conference. The more so since you asked me to review various aspects of the sunflower in a worldwide retrospective. A subject which is rather familiar to me. Because, as you probably know, I am not only the Secretary General of the International Sunflower Association but also the editor of the Association's quarterly magazine "The sunflower Newsletter" for which, apart from other editorial work, I compose the section called The sunflower World, a quaterly review of sunflower production, trade and use both worldwide and per country. Also in my capacity as manager of oil crop research for Unilever I am constantly confronted with world developments regarding sunflowers as well as other oil crops. Despite all that it remains difficult to obtain reliable statistics and to see through the background of certain crop data and market events. And it is even more difficult, if not impossible, to forecast future developments related to crop production, trade and use. Consequently the information presented hereafter should not be considered as definite but as indicative only.

My presentation is divided into three sections. First of all I will concentrate on sunflower production, which includes seed as well as oil and meal. Being a cash crop farmers grow sunflowers for the market and never for home consumption like third world farmers usually do with for instance maize. Being a commodity crop large quantities of sunflower seed and to a minor extent also of sunflower oil are disposed of on the world market. Consequently the second part of my lecture will deal with sunflower trade aspects. Neither production nor trade would survive if the consumer's interest fades away. Therefore I will terminate my presentation with focussing on past and present consumption patterns and possible future trends.

Where applicable I will compare developments in sunflower pro-

duction, trade and use with four major oilseeds, i.e. soybeans, cottonseed, groundnuts and rapeseed. For this comparison the criteria mentioned in Table 1 have been used.

TABLE 1

Key data for major oilseeds

Oilseed	Oil content (in %)	Remarks
Soybean	18	on beans
Cottonseed	18	on delinted seed
Sunflowerseed	38	on seed produced before 1975
	43	on seed produced since 1975
Groundnut	45	on shelled nuts
Rapeseed	38	on seed

Total world production of these five major oilseeds more than doubled during the last 20 years and will reach about 165 million tons this season. The increase in production has been particularly significant since 1975. On the average the production grew with about 7% per annum during the last 5 years.

Compared with the combined world production of the 5 major oilseeds the production of sunflower seed remained relatively small, its share never exceeded 10% (Figure 1).

Soybeans have always been the principal contributor to the production of oilseeds. Its production trebled during the past 20 years and is expected this season to surpass the 100 million tons for the first time in history, thereby claiming approx. 60% of the world's production of major oilseeds.

Although on a lower scale the increase in world production of sunflower seeds has been fairly impressive too. In actual fact it more or less followed the average trend and doubled over the last 20 years. During this season total world sunflower production will reach approx. 15 million tons (figure 2).

When studying the production figures of more recent years it is obvious that notably soybeans, but also sunflowers and rapeseed are responsible for the large production increases of the last 6 years.

TOTAL WORLD PRODUCTION OF 5 MAJOR OILSEEDS AGAINST THE PRODUCTION OF SUNFLOWERSEED

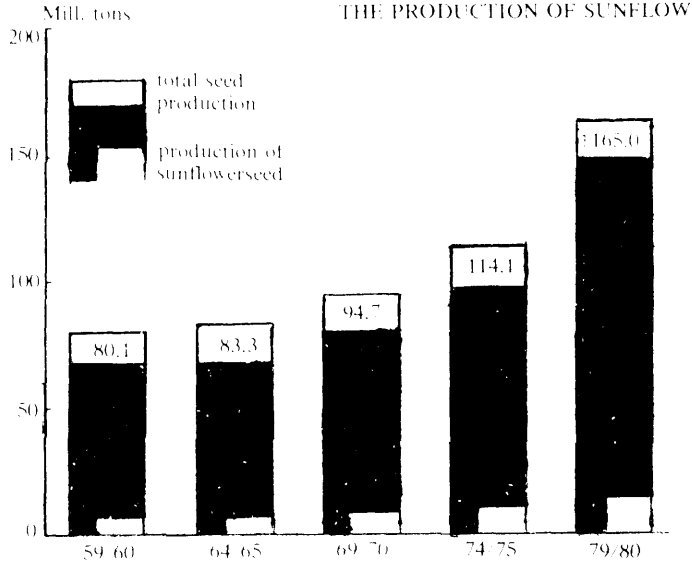

Figure 1

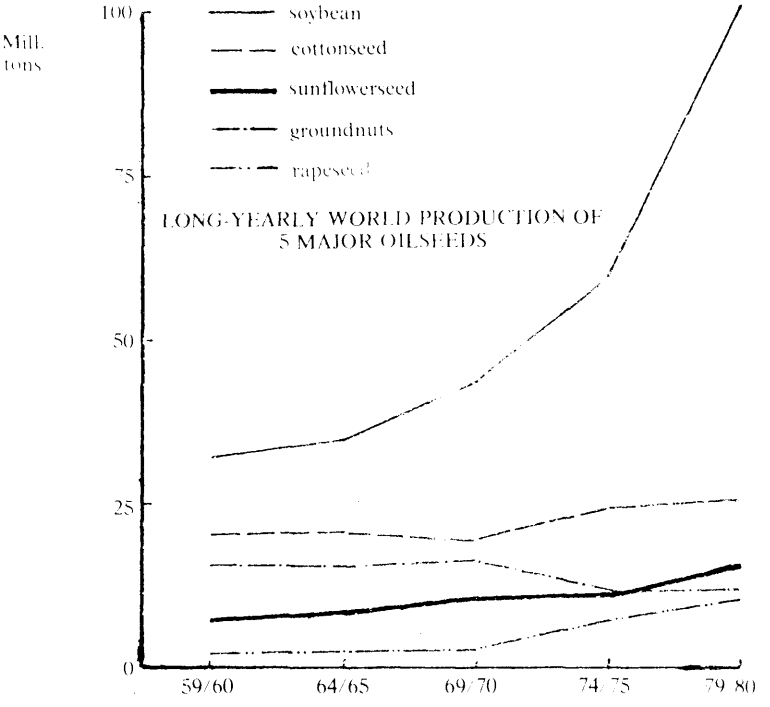

Figure 2.

TABLE 2

Production of major oilseeds during recent years (in mill. tons)

	74/75	75/76	76/77	77/78	78/79	79/80
Soybeans	59.1	70.9	64.7	77.5	83.0	100.5
Cottonseed	24.7	21.3	22.4	24.8	23.4	25.5
Sunflowerseed	10.8	9.9	10.0	12.9	13.1	15.5
Groundnuts (shelled)	11.8	12.9	11.4	11.5	12.3	12.0
Rapeseed	7.7	8.2	7.3	8.3	11.3	11.0
Total	114.1	123.2	115.8	135.0	143.1	164.5

As for sunflower seed the production has increased from around 10 million tons during the mid seventies to 15.5 million tons this season. In this respect it is interesting to see where the increase in production was realized.

Looking at the nine major sunflower seed producing countries the following conclusions can be drawn. With the exception of the USSR all other countries produce significantly more sunflower seed this season than 5 seasons ago, although as you will remember from the previous table, total world production during that season was already exceptionally high.

Most striking in Table 3 is the USA. With the present production level of over 3.6 million tons of seed the US has climbed up from the eight to the second position, thereby leaving even Argentina behind.

What has caused this remarkable development and why not did the USSR participate in the production hausse?

The development of high yielding hybrid varieties is probably the main reason for the sudden expansion in production. Thanks to the utmost endeavours of breeders like Pustovoit, Putt, Kinman, Leclercq and Vranceanu a break through was realized in the early seventies to develop hybrid varieties that are resistant to various diseases, can yield up to 4 tons of seed per hectare and produce at least 45% of oil on seed basis. Besides it became feasible to develop varieties that are well adapted to a wider range of environmental conditions. As a result of that sunflowers became competitive to various traditional crops both in crop security and in market value, and consequently

TABLE 3

Major sunflower seed producing countries

1974/75			1979/80		
Nr.	Country	1,000 tons	Nr.	Country	1,000 tons
1	USSR	6,784	1	USSR	5,400
2	Argentina	732	2	USA	3,600
3	Romania	681	3	Argentina	1,600
4	Turkey	420	4	Romania	820
5	Bulgaria	368	5	Yugoslavia	590
6	Yugoslavia	298	6	Turkey	550
7	Spain	286	7	Spain	490
8	USA	274	8	Bulgaria	400
9	South Africa	253	9	South Africa	315
10	Others	654	10	Others	1,675
	total	10,750		total	15,500

farmers and governments throughout the world decided to destine part of their agricultural land to the cultivation of sunflowers with the US as its exponent. But also for example in Yugoslavia where government buyers pay according to the percentage of oil in the seed delivered many farmers switched to high-oil yielding sunflower varieties in recent years.

Apart from a break through in sunflower agronomy also the consumer became aware of the advantages of sunflower oil over most other edible oils because of its high content of poly-unsaturated fatty acids. As a consequence the demand for sunflower oil increased rapidly during the past 10 years which in its turn had and advancing effect on the world market price for the oil. This being another stimulance to government and farmers to grow more sunflowers. For instance in the state of North Dakota, which at present accounts for almost three-fifth of the total US sunflower cultivation, the crop returned a gross profit of US$ 128 per acre in 1977 compared with only US$ 61 for wheat and US$ 57 for barley.

And last but not least the seventies are also characterized by a growing demand for animal feed. This has spurred the interest for oilseed meals, including sunflower meal. Particularly during the last

few years it sometimes appeared as if the interest for meal was even greater than for oil.

These factors have had an unmistakable influence on the development of the production of sunflower seed in many countries.

Remains, however, why the Soviet Union did not follow the general trend?

The reason for that should first of all be sought in unfavourable weather conditions during the past four years (Table 4). Looking at the long-yearly sunflower seed yields per hectare one may conclude that 1974 was an exceptionally good year.

TABLE 4

Soviet statistics on sunflower production

	1974	1975	1976	1977	1978	1979
Area (in 1,000 ha)	4,686	4,740	4,534	4,574	4,558	4,635
Yield (in kg/ha)	1,440	1,310	1,160	1,280	1,170	1,160
Production (in 1,000 tons)	6,780	6,210	5,260	5,855	5,330	5,375

For that year the seed yield turned out to be 18% above the average yield for the years thereafter. Actually the yield of 1974 was the second hignest ever recorded in the USSR. Table 4 also demonstrates that apart from annual fluctuations the area cultivated with sunflowers did not expand during the past 6 years either. This is partly due to the fact that the Soviet government sees bigger future supply and usage potentials for cottonseed and soybeans than for sunflower seed. A policy to a large extent dictated by the increasing demand for animal feed.

Another aspect I like to call your attention to is the increasing contribution of so-called minor sunflower seed producing countries (Table 5). In 1974/75 these countries produced about 650,000 tons or 6 percent of the world total. In 1979/80, however, their contribution comes up to almost 1.7 million tons or 11 percent of the world total production for this season. Here again practically each individual country increased its production, whereby the Peoples Republic of China has taken over the lead from Australia. Remarkable production increases were also realized in Canada, Hungary and India.

Hungary for instance is a relatively small sunflower seed producer compared with its other East European neighbours such as the USSR

and Romania. The growth in sunflower area in recent years took place at the expense of forage crop. Modern sunflower varieties require less moisture than maize and do well in rainfed areas. The average yield per hectare for sunflower seed has grown steadily reaching already 1.5 tons in 1977. It is believed that Hungary can increase per hectare yield by another 25-30 percent through the use of hybrid seed. in 1977, about 90 percent of Hungary's total sunflower area was planted to open pollinated (non-hybrid) varieties. In 1979 the share of area planted to hybrids had risen to about 35 percent, which I consider a surprisingly rapid increase since Hungary does not produce its own hybrid sowing seed, but purchases the seed from France, Romania and Yugoslavia. Not specified on Table 5 are those countries producing less than 30,000 tons of seed at present. This certainly does not mean that these countries should be neglected, because among them you will find countries producing almost twice as much as Canada did in 1974/75.

TABLE 5

Minor sunflower seed and oil producing countries

1974/75 Nr.	Country	1,000 tons	1979/80 Nr.	Country	1,000 tons
1	Australia	113	1	China P.R.	300
2	Hungary	101	2	Hungary	270
3	France	73	3	Australia	196
4	China P.R.	70	4	Canadá	190
5	Uruguay	51	5	France	172
6	Irán	44	6	India	130
7	Italy	33	7	Uruguay	70
8	Morocco	25	8	Italy	60
9	Canada	15	9	Czechoslovakia	30
10	Others	129	10	Others	257
	Total	654		Total	1,675

Now what will happen during the next 5 years?

Figure 3 shows the actual world production of sunflower seed during the seventies together with its main contributors. The Figure also indicates the projected production levels for the early eighties.

With regard to world production I expect a further increase to about 18 million tons by 1985. This expectation is primarily based on a continued increase in production in the US and Argentina, reaching resp. 5 and 2 million tons of seed by 1985, a fairly constant production level in the USSR of about 6 million tons per annum and a limited expansion for all other countries together.

ACTUAL AND PROJECTED WORLD PRODUCTION OF SUNFLOWERSEED

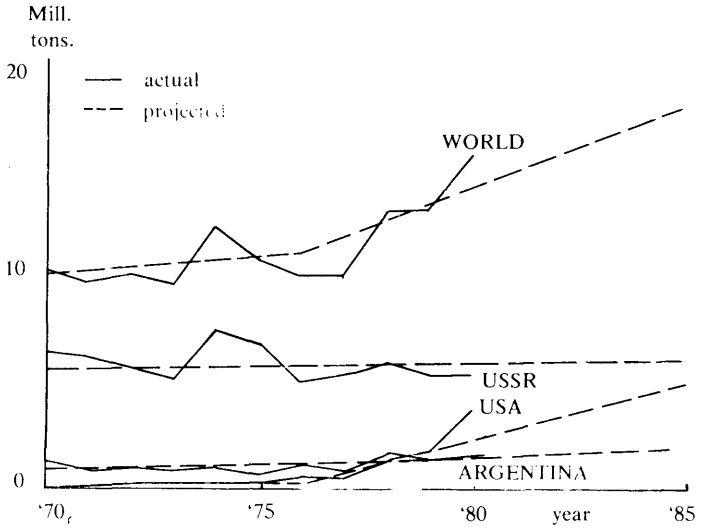

Figure 3

For this year, however, I reckon with a temporary stagnation, if not a drop in total world production. Reasons for that are among others:

— the unfavourable world market price relationship vis-a-vis competing oilcrops, and
— the expected record carry over stocks for this season.

Besides for the three countries shown in Figure 3 the production of sunflower seed might be negatively affected this year by

— delayed planting in the USSR
— the mild winter with little or no snow, and the long stay away of the spring rains in the US as well as the lower sunseed/grain price ratios in the country, and

— the increasing pressure on the Argentine farmer to produce more soybeans for animal feed purposes.

To estimate the future production outside these three countries remains difficult as for many countries due to political uncertainties it is impossible to plan more than one year ahead.

SUNFLOWER SEED PRODUCTION PER CATEGORY OF COUNTRIES

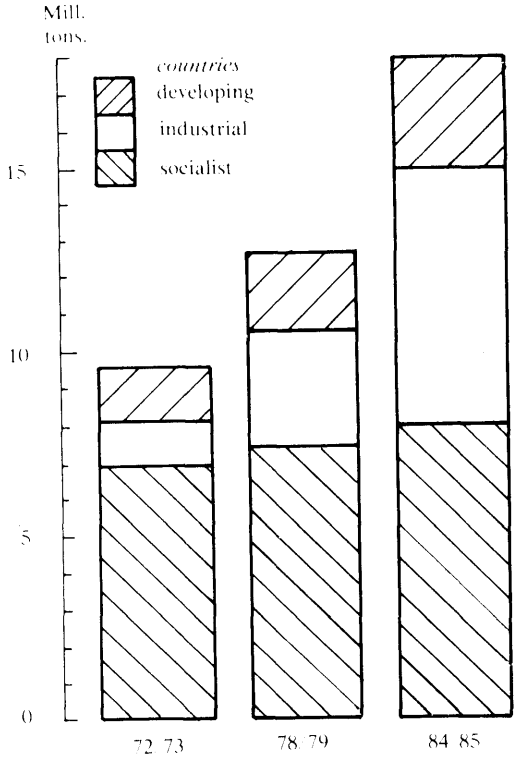

Figure 4

What can be said, however, is that the rapid increase in sunflower seed production in various non-socialist countries has reduced the dominant share of the latter from 72% eight seasons ago to about 58% at present, while as the slide shows a further shift in favour of both industrialized and developing countries is anticipated for the next 5 years.

Turning to the production of oil I first of all like to give you an idea of the total world production of oils and fats.

TABLE 6

World production of oils and fats (in mill. tons)

	1975/76	1979/80	Percentage increase
Major edible oilseeds	29.7	38.6	30.0
Total non-animal edibles	42.7	54.1	26.7
Animal	11.5	13.2	14.8
Non-edibles	9.2	10.5	14.1
Total	63.4	77.2	21.8

Table 6 shows that over the last 5 years the total production of all agricultural oils and fats together increased with about 22%. A remarkable development, which becomes even more spectacular if one compares this figure with the increase in world population which was only about 8% over the same period. Particularly responsible for the huge increase in production are the 5 major edible oilseeds. Together these oilseeds account for about 50% of the world production of oils and fats at the moment. Whereby you should know that at present sunflower is the second largest oil producing crop on earth.

Being a seed producer does not necessarily mean that a country is a significant oil producer as well. In this respect it is interesting to compare major sunflower seed producing countries with principal sunflower oil producing countries.

Table 7 shows that the East European countries are by far the largest seed and oil producers. Also North America is a substantial seed producer but a minor oil producer, while on the other hand West Europe is a significantly large oil producer but produces little seed. The rest of the world shows about the same ratio between seed and oil production as for East Europe. The overall ratio seems relatively low but this is mainly due to the expected high seed stock carry over at the end of this season.

One may conclude from the figures presented in Table 7 that there should be a significant trade in sunflower seed and oil. Gross exports for this season are estimated at 3.4 million tons of seed and

0,6 million tons of oil which together expressed in seed is equal to about 30 percent of the total production (Figure 5).

TABLE 7

Major sunflower seed and oil producing countries in 1979/1980
(in mill. tons)

Country	Seed production	Oil production
USSR	5,400	1,760
Other East Europe	2,200	870
Total East Europe	7,600	2,630
Germany F.R.	—	320
Other EEC	250	360
Other West Europe	510	340
Total West Europe	760	1,020
USA	3,660	210
Other North America	200	110
Total North America	3,860	320
Argentina	1,600	520
Other countries	1,680	650
Total other countries	3,280	1,170
Total World	15,500	5,140

Compared to other major oilseeds the production to export ratio is relatively close to that for soybean and rapeseed and as such sunflower seed can be considered as a typical world market commodity thereby ranking fifth on the world export list of edible oils and oilseeds.

Major exporters of sunflower oil or seeds are the USA, Argentina, Hungary, Romania and the USSR. So far the US has always been a seed exporter while the others are basically oil exporters.

Export volumes for the US and the USSR have developed in opposite directions over the past 5 years (Figure 6). Whereas the Soviet export of sunflower oil decreased from 440,000 tons in 1974/75 to an estimated 70,000 tons this season, the US export of sunflower

RATIO BETWEEN PRODUCTION AND EXPORT FOR MAJOR OILSEEDS

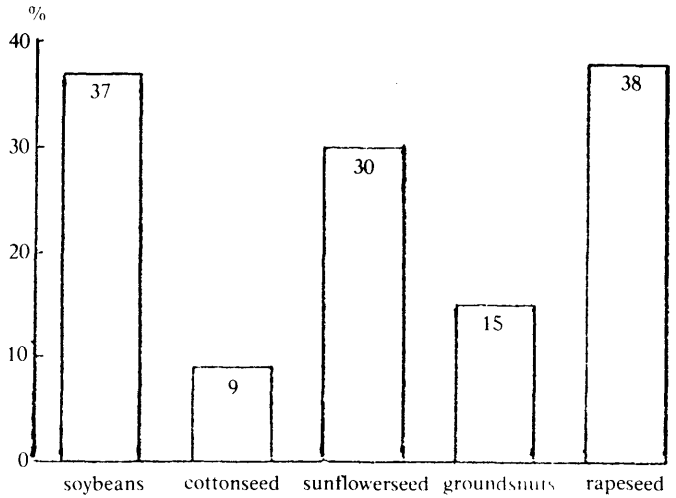

Figure 5

GROSS EXPORTS OF SUNFLOWER SEED AND OIL FROM THE USA AND USSR RESP.

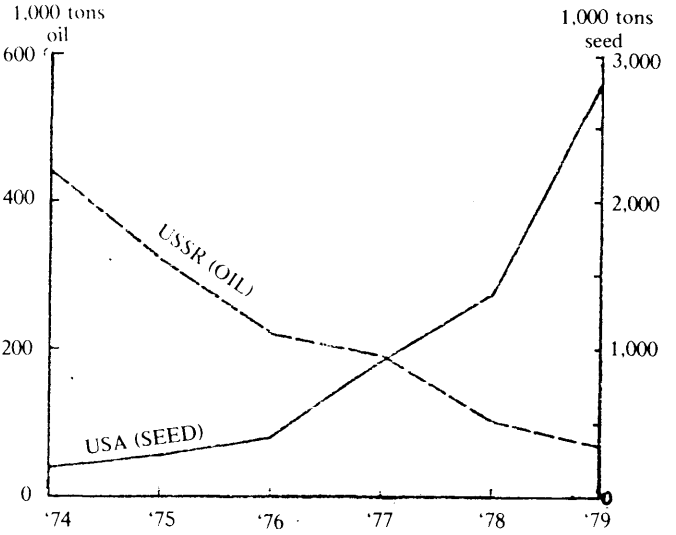

Figure 6

seed increased over the same period from 150,000 to 2.8 million tons. However, with the recent increase in sunflower seed crushings in the US, one may expect a gradual change-over from seed to oil exports for the years to come.

As for sunflower seed and oil imports the number of countries involved exceeds by far the number of exporting countries.

MAJOR COUNTRIES IMPORTING SUNFLOWERSEED ( ) AND OIL ( ) IN 1978/1979 IN 1,000 tons

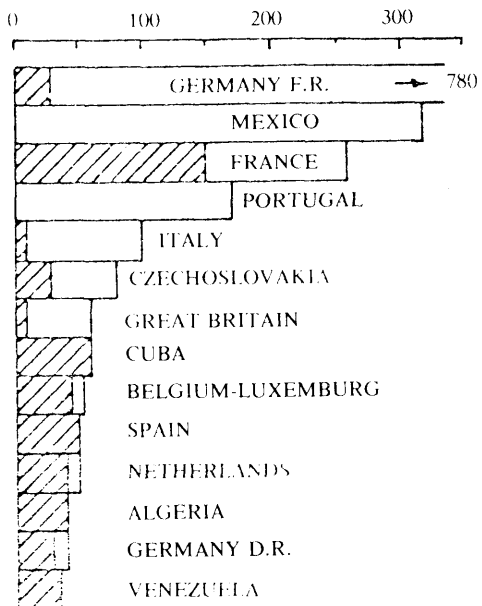

Figure 7

In Figure 7 the most important importing countries are given together with their trade volume for 1978/79. Several of these countries imported sunflower seed and/or oil for the first time and will probably discontinue their imports when conditions change.

West Europe and in particular the EEC countries are the principal importers. Their market share has been relatively constant for many years. However, since 1977 the demand for sunflower seed and oil in this area has not kept pace with the increase in world supplies

TOTAL NET IMPORT OF SUNFLOWERSEED/OIL

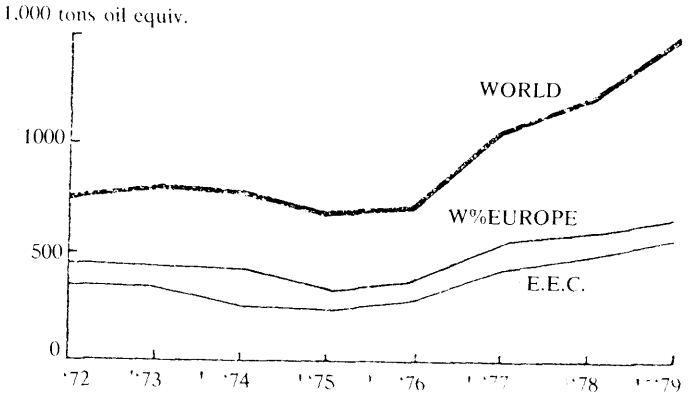

Figure 8

and exporters had to look for new markets. If the increase in the production of edible oils and oilseeds and sunflower in particular materializes as projected for the next 5 years and the European demand for sunflower products continues to grow at the present rate, export to new markets will become more and more important.

At present West Germany is by far the largest importer of sunflower seed. It is interesting to see how this country changed from a major oil importer to a seed importer over the past 6 years. A development which might have to be reversed when more and more sunflower seed is crushed in the country of origin. Altough West Germany is a large importer of sunflower seed approx. 50% or 140,000 tons of the oil extracted from it is exported again and primarily to neighbouring countries.

Next I like to say a few words about the production of sunflower meal.

Table 8 shows the major sunflower meal producing countries both in 1974/75 and in 1979/80. During that period the world production of sunflower meal increased with about 25%. The bulk of the increase, however, was realized during the past 2 years. This season for instance, the meal cutput is expected to rise by about 700,000 tons or more than 14%.

WEST-GERMAN GROSS SUNFLOWERSEED (OIL) IMPORTS

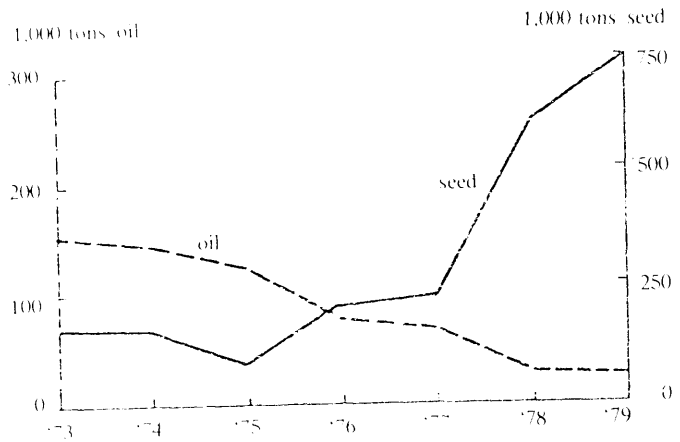

Figure 9

TABLE 8

Major sunflower meal producing countries
(in 1,000 tons)

1974/75		1979/80	
USSR	2,620	USSR	1,580
Argentina	419	Argentina	650
Romania	312	Germany F.R.	475
Bulgaria	237	Romania	420
Turkey	189	USA	330
Spain	134	Spain	245
South Africa	127	Turkey	240
Yugoslavia	121	Yugoslavia	235
Germany F.R.	76	Bulgaria	190
Others	463	Others	1,465
Total	4,698	Total	5,830

Like for sunflower seed practically each individual country shows an increase in production, whereas the total number of countries involved in the production of sunflower meal has grown too since 1974/75. Exponent in increase in meal production is West Germany. The USSR on the other hand has been a discord. Its meal production decreased over the same period with some 1 million tons or about 40%.

Despite the large increase in world production of sunmeal during the past few years there is still sufficient room to expand usage as the increase in production can be marketed without any widening of the discounts from competing meals. On the contrary, in the future some discounts will probably narrow even further.

As a result of the expected increase in sunflower seed crushings for meal the world production of sunflower oil might very well reach the level of 5.1 million tons for this season against 4.4 million tons last season. Like for meal and contrary to other oilseeds also the demand for sunflower oil is expected to be very pronounced this season. Hence I optimistically expect it to show a near record increase of about 0.5 million tons. But even if the optimistic demand expectation materializes the ending stock of this season will increase sharply to about 550,000 tons thereby becoming the highest carry over stock in sunflower oil for the last 5 years.

TABLE 9

World production, disappearance and stocks of sunflower oil
(in 1,000 tons)

	75/76	76/77	77/78	78/79	79/80
Opening stocks	780	440	240	330	310
Production	3,410	3,395	4,180	4,385	5,140
Disappearance	3,750	3,595	4,090	4,405	4,900
Ending stocks	440	240	330	310	550

The experience of the seventies show that a surplus over demand of at least 10% is able to depress prices sharply. During this decade this has happened in 1974/75. It took about two seasons to do away with the unusually high surplus and consequently prices started to rise. A more or less similar development is expected to take place this time again. Even if we take into consideration that the refining costs

for sunflower oil are higher than for soybean oil, the fact remains that sunflower oil with its higher quality, especially its higher content of poly-unsaturated fatty acids, is now available at almost the same price for soybean oil. And it might soon be available at even a lower price. As a result the usage of sunflower oil not only in West Europe but also in East Europe, North Africa, North America and other areas will rise sharply. This together with the expected temporary stagnation in production increase for next season will result in a rapid reduction of the surplus and consequently I expect prices to start rising again as from either late this year or early next year and a re-establishment of the old price relationship vis-a-vis competing crops to follow soon.

LOWEST REPRESENTATIVE ASKING PRICE FOR SUNFLOWER SEED, OIL AND MEAL

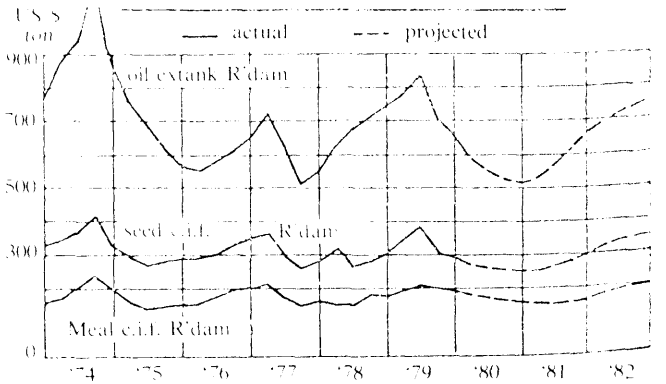

Figure 10

Finally I like to spend a few words on some consumptive aspects of sunflower products.

Table 10 gives an overall picture of the regional consumption and its development for all edible oils and fats as well as for sunflower oil.

Striking are the high oil and fat consumption figures for North America and West Europe and their relatively small increase over the past 5 years. The latter is also the case for Asia, the region with the largest population but with the smallest oil and fat consumption. If we compare these figures with those for sunflower oil it is obvious that East Europe is by far the largest consumer. Although its annual consumption per caput decreased somewhat since 1974, sunflower oil

TABLE 10

World consumption of total edible oils and fats versus sunflower oil (in kg/caput)

	Total edibles		Sunflower oil	
	1974	1979	1974	1979
W. Europe	23.2	24.2	3.1	4.0
USSR/E. Europe	17.3	19.4	7.8	7.4
N. America	25.9	26.8	3.8	5.9
C+S. America	10.8	12.3	0.8	1.0
Africa	6.3	7.4	0.1	0.3
Middle East	12.2	13.4	0.2	0.3
Asia	4.2	4.7	0.1	0.1
Australia	15.6	15.6	0.9	2.3
World	9.6	10.1	0.8	1.1

still forms 38 percent of the usage of total oils and fats. Much lower but still noteworthy are the sunflower oil consumption figures for West Europe and North America whereby the increase in consumption particularly in the last region has been very impressive over the past 5 years. It is interesting to examine how much sunflower oil is actually consumed within the EEC.

ANNUAL USE OF SUNFLOWERSEED OIL IN E.E.C. COUNTRIES

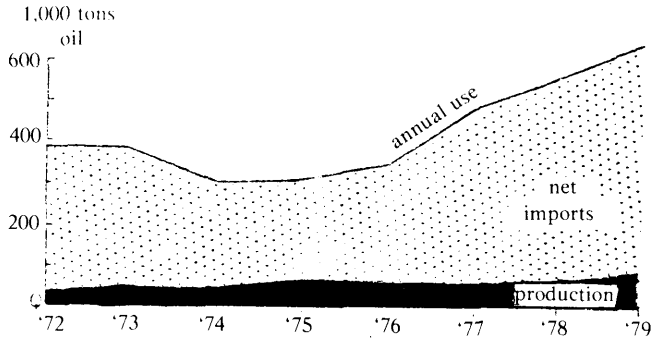

Figure 11

In Figure 11 the annual use of sunflower oil is presented as the sum of the actual production and annual net imports. The line resulting from it shows a considerable drop in consumption in 1974 followed by a cautious recovery during the subsequent two years and a rapid increase during the past 3 years. The development can be explained as follows:

— In 1974 the world market price for sunflower seed and oil was exceptionally high; the average annual representative asking price for the nearest forward shipment was US $ 350 per ton of seed and US $ 860 per ton of oil;
— While during the period 1974-76 price discounts vis-a-vis the major competitors such as soybean, rapeseed, palm oil and groundnuts were unfavourable, which reduced the demand for sunflower products;
— An finally the years 1977-79 were characterized by a strong demand for oil meals; the production of sunflower meal within the EEC, for instance, increased from 190,000 tons in 1976/77 to about 670,000 tons in 1978/79, which in its turn resulted in an increasing availability of sunflower oil.

Sunflower oil has become known as a special oil. For a number of years experts from various countries have examined the effect of dietary fats on human health. Many of them have recommended an increase intake of poly-unsaturated oils and fats. Sunflower oil containing approx. 70% poly-unsaturated fatty acids has become the main supplier for the production of so-called high PUFA products, such as dietary margarines.

The world consumption of high PUFA margarines has steadily grown from 150,000 tons in 1974 to about 280,000 in 1979.

Figure 12 shows the consumption volumes for 8 major PUFA margarine countries —Belgium and the Netherlands are by far the largest consumers followed by Canada and South Africa. Apart from West Germany the consumption of PUFA-margarines has increased significantly during the past 5 years. Figure 12 also demonstrates as to what level these margarines can at least be absorbed in the human diet. Marketing analyses, however, indicate that, with the present pattern of nourishment, for some countries the maximum absorption capacity of these margarines might be reached soon. For most other areas a further increase in the consumption of poly-unsaturated sunflower products can be expected for the next decade. However, reliable projections are difficult to make since the trade in these

MAJOR PUFA-MARGARINE CONSUMING COUNTRIES

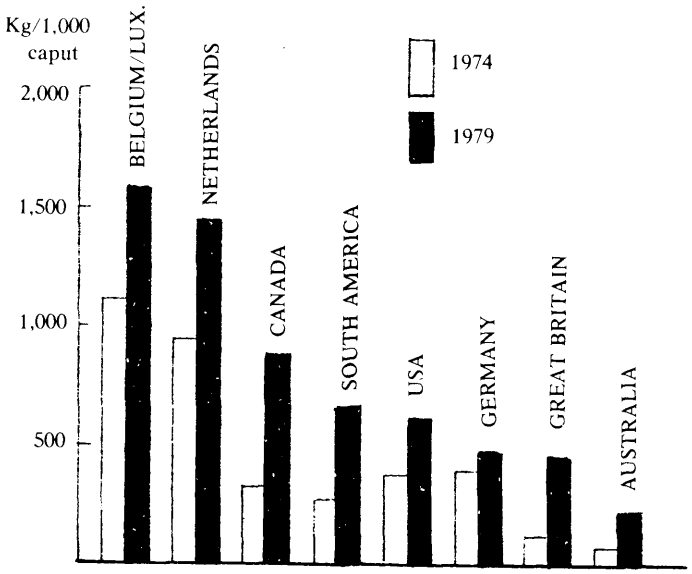

Figure 12

products is restricted in many countries and nobody can foresee what will happen to these restrictions in the future.

In this lecture, Mr. Chairman, ladies and gentlemen, I have tried to make you aware of the versatility of the sunflower and its products by touching upon various aspects. I do realize, however, that I have been far away from being complete, but I sincerely hope that I have been able to provoke your curiosity in this beautiful crop and that this conference will succeed in satisfying your interest.

Thank you for your attention.