

World Conference Proceedings

Edible Fats and Oils Processing:

Basic Principles and Modern Practices

Edited By

David R. Erickson



American Oil Chemists' Society

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Edible Fats and Oils Processing:

Basic Principles and Modern Practices



Maastricht, The Netherlands

October 1-7 1989

World Conference On Edible Fats and Oils Processing—

Basic Principles and Modern Practices

Preface

David Erickson, Editor

The World Conference on Edible Fats and Oils Processing—Basic Principles and Modern Practices was held in Maastricht, The Netherlands, October 1-7, 1989. The purpose of the conference was to provide a thorough study of modern edible fats and oils processing from raw materials to finished product. A thorough analysis of current state-of-the-art unit processes—as well as the unique physical and chemical characteristics of major animal and vegetable fats and oils, and how those properties may affect processing choices—was presented. The world supply-and-demand balance and trends, trading practices and the economic and political factors affecting the industry were discussed. Participants were given insight into the industry that will help them guide their institutions for future development.

This monograph contains edited revisions of all the invited speakers and selected poster presentations. It is hoped that this monograph will prove to be a helpful reference to both those new to the industry as well as to us “old timers.”

The foregoing is a restatement of the intended purpose of the conference. The conference was a success thanks to the volunteer efforts of the chairmen, speakers, and poster session presenters.

We would like to thank our co-chairman, Dr. J.A. Wijisman, who contributed immeasurably by working

with the European co-chairmen and speakers. Without their help the conference wouldn't have come about.

We also express gratitude to Dr. Rich Wilson who chaired the poster sessions and, with the help of Dr. Tom Applewhite, edited the poster session papers. Also, thanks to Ed Campbell, general chairman, and C.J.M. Meershoek, local chairman, for their provision of an outstanding venue and general program events which provided the necessary framework for the technical program. Perhaps most importantly, we thank Jim Lyon, AOCS Executive Director, and his AOCS staff who provided their usual behind-the-scenes support and help both with the conference and with the monograph.

A final and important acknowledgement goes to Ms. Tina Null, ASA Technical Services Secretary, who uncomplainingly did the detail work that is so necessary in bringing a conference and monograph such as this to a successful conclusion.

The publication of this monograph is the culmination of over three years' work, and, to us, a fine example of the close-knit nature of our world of fats and oils. This is especially illustrative since a majority of the input was from volunteer effort by individuals and their organizations.

Thanks to all!

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Current World Supply, Demand and Price Outlook for Oils & Fats

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Introduction

The following are the latest projections which *Oil World* just revised for this conference. What will be displayed — backed up by detailed fundamental analyses — may surprise the bears in the audience.

Oil and fat markets provide a variety of weighty bearish, as well as constructive or bullish, factors, but, as always, the question — Which will be dominant? — remains. Let us look at the most important of them and evaluate their implications for prices and price relationships.

Food oils are still the weakest members in the complex (Fig. 1). A glance at the graph shows their prices trailing those for oilseeds and oilmeals uninterruptedly for more than two and one-half years. Although price discrepancies between the three complexes have narrowed since June, right now food oils are still ten percentage points behind oilseeds and twenty behind oilmeals.

World Oilseed Production

World oilseed production is recovering sharply by approximately 13 MT or 7% this season (Fig. 2). Despite drought damage in some major areas, U.S. soybean production might recover by a comfortable 10 MT. Recent frosts have been less severe than feared and the latest field reports indicate that actual yield losses so far have been limited to some isolated areas. And with harvesting close to gaining momentum, there is no immediate supply concern. In fact, world

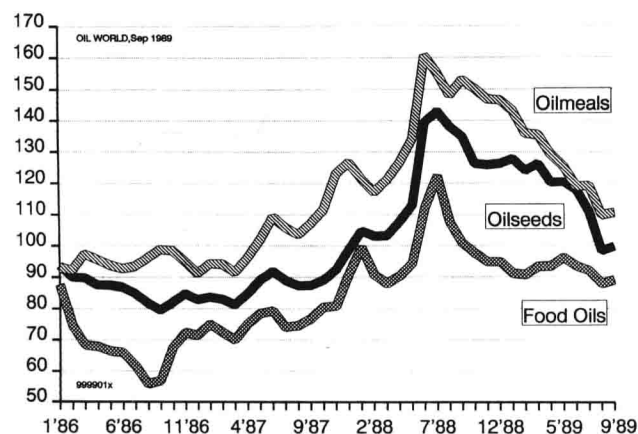


Fig. 1. ISTA world market price indices. Average 71/72 to 74/75 equals 100.

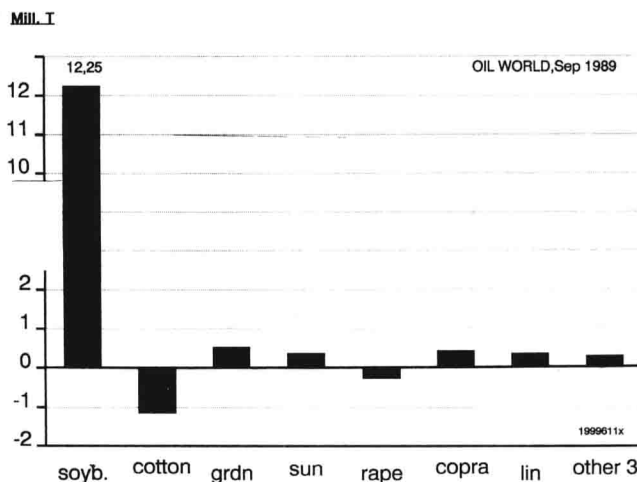


Fig. 2. Ten major oilseeds in 1989/90 (change in world output).

soybean production will probably be boosted by 12 MT to a record 106 million. Taken per se, this is bearish.

Uncertainty is still surrounding the South American production outlook, with plantings just having been started. But even if Brazilian farmers in the more remote areas cut down soybean plantings due to uneconomic returns (higher freight costs) seen for the last crop and Brazilian plantings are reduced by almost a million ha (hectare), next year's South American soybean production could still recover by 1-2 MT.

However, world production of all competing oilseeds other than soybeans will be up only marginally on account of lower plantings and less favorable weather conditions in some major countries. This is constructive.

It is a rare coincidence that combined world supplies of all oilseeds other than soybeans are rising by less than one percentage point. During the past decade, soybeans struggled notoriously against the quickly expanding competing oilseeds and often suffered market share losses. But the coming season will be different. Soybeans will regain some of the market shares through a substantial swing-back of world demand.

Soybeans are likely to account for more than nine-tenths of the forecast growth of 7 MT in world oilseed crushings in the coming season. Soybean disposals of the dominant supplying countries (the U.S., Brazil and Argentina) have already been recovering since August and increasing from a year earlier in Sep-

tember for the first time in one and one-half years (Fig. 3). Further above-average growth can be anticipated for world soybean exports and crushings in the months ahead.

But U.S. soybean disposals are likely to have a historically slow start (Fig. 4), due to record old-crop supplies still available in South America. At the beginning of September, 1989 combined soybean stocks in Brazil and Argentina approached 14 MT, which is more than their combined annual soybean crops prior to 1976. Brazil has aggressively marketed soybeans and soy products since July and cut into the U.S. exporters' market share.

The prospective boost in South American crushings and exports in the first half of the 1989/90 season will probably curb the U.S. growth potential to only around 5%. This is bearish and could result in nearby price declines due to a combination of harvest pressure in North America and disappointing weekly usage statistics for U.S. crushings and exports.

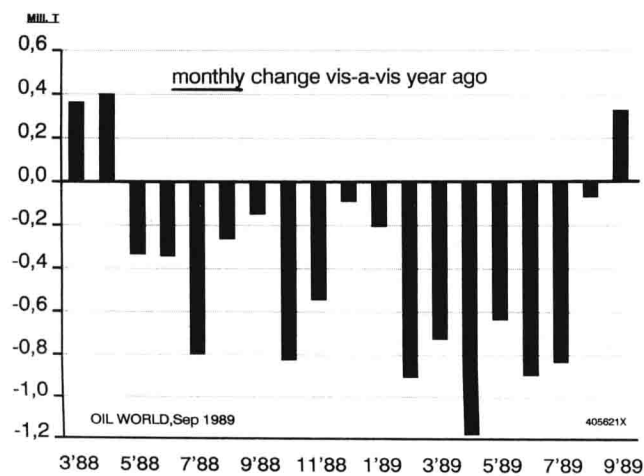


Fig. 3. Change in soybean disposals of U.S.A., Brazil and Argentina.

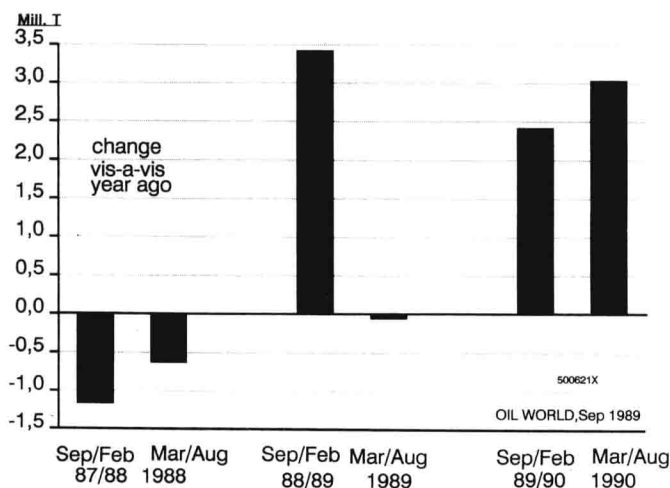


Fig. 4. Change in soybean disposals (Argentina and Brazil crush and exports).

On the other hand, world demand is strong. In the case of meal, a combination of attractive prices with much improved livestock profitability in some key consuming areas of the world should cause a significant turnaround in usage rates. Figure 5 shows that current soybean meal prices are way below the previous year (despite the recent recovery), and quite attractive for the livestock producers in the European Community — the appearance of the price rally in meat experienced this year.

Oilmeal usage rates have been expanded sizeably since last quarter (July/Sept) not only in the EEC, but also elsewhere. U.S. soybean meal usage has recovered sharply and has been ahead of last year's since August. Considerable growth is also reported from many smaller countries in Asia, Africa and Central/South America.

The demand for oil is very strong, too. Figure 6 shows that palm oil has become very attractive this year, establishing unusually wide discounts vis-a-vis soybean oil. However, soybean oil prices today are still trailing last year's by approximately one-tenth (basis Rotterdam). A combination of relatively attractive oil prices coupled with lower stocks and strong demand in major consuming countries could actually create quite a strong price situation in the weeks and months ahead.

But before digging more closely into the oil market, let us come back to oilseeds (Fig. 7). It was mentioned above that the 'supply bearishness' stemming from soybeans alone is counteracted by the almost stagnating supplies of all competing commodities and the prospective massive swing-back of demand toward soybeans. With only little growth in usage rates possible for all competing oilseeds, soybeans are facing an unexpected demand growth.

The current global supply/demand appears to be quite closely balanced for the new season. The revised *Oil World* projection is shown in Figure 7. New oilseed production — though recovering significantly — will just be matching the projected demand. The neces-

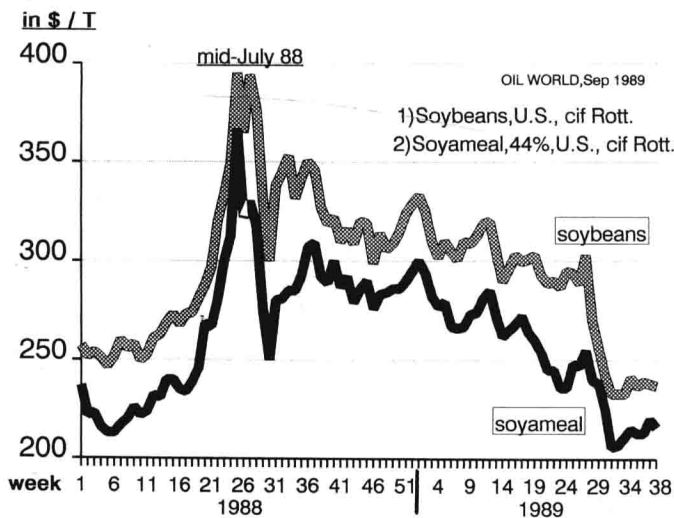


Fig. 5. Soybeans and soybean meal (weekly price trend).

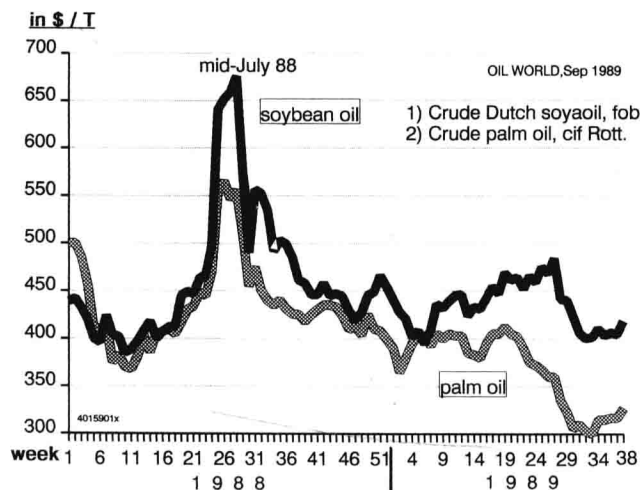


Fig. 6. Soy and palm oils (weekly price trend).

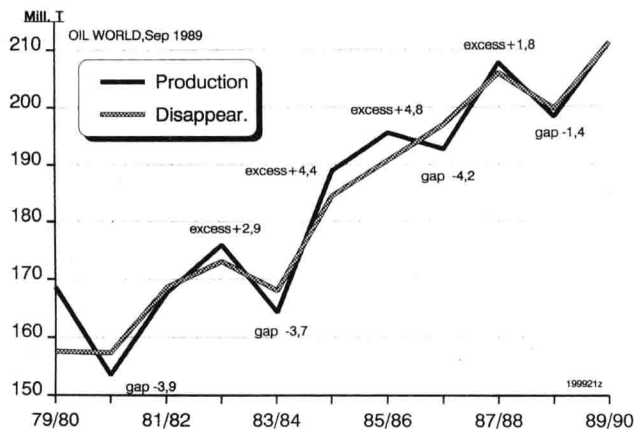


Fig. 7. Ten major oilseeds (world production and disappearance).

sary rebuilding of oilseed stocks will thus have to be deferred into the 1990/91 season. It might not occur if prices are not attractive enough to induce a sufficient expansion of oilseed plantings.

The official U.S. soybean stocks estimate of 182 million bushel as of Sept. 1, 1989, has been a surprise to everybody. The official number (though still down 120 million or 40% from last year) has been sharply above pre-report estimates in the trade and has sizeably increased total U.S. soybean supplies for next season. It now looks likely that U.S. soybean stocks recover to 275 million bushel (or 7.5 MT) next autumn.

But examination of the world supply and demand again shows that the likely recovery of U.S. soybean stocks alone might be sufficient to offset the decline in the stocks of Brazilian soybeans, Canadian rape and linseed, U.S. cottonseed and oilseeds in a few other countries of the world.

The annual development of oilseed stocks in all major countries of the world is shown in Figure 8. Following a decline of 1.4 MT last season and of around 4 MT over the past three years, they will probably not recover in the coming season.

Oilseed stocks are even getting tighter relative to usage (Fig. 9). Should any supply losses occur — due, for instance, to damaging U.S. frosts and/or lower than previously expected production in the U.S.S.R., India or China — higher prices will be needed to ration supplies, curb demand and buy more acres into oilseeds. The stock/usage ratio for all the ten major oilseeds is seen declining to around 12% next autumn. This is small by any measure and should fuel rallies in the course of this season in tandem with other factors, once confidence is restored.

A similar chart can be drawn for the soybean stocks in percent of usage for three major supplying countries — Argentina, Brazil and the U.S. (Fig. 10). The tightness in soybeans is not as critical as for all oilseeds relative to usage, but one has to take into

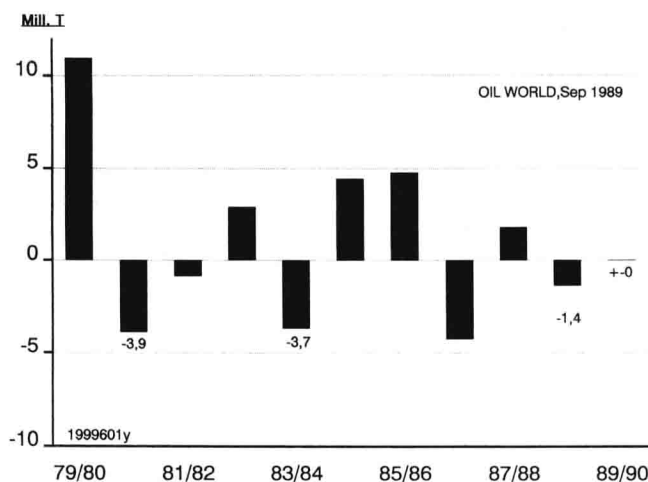


Fig. 8. Ten major oilseeds (excess or deficit of world production) versus disappearance.

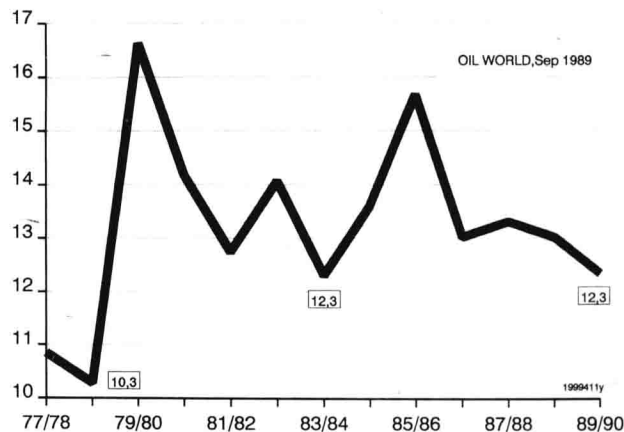


Fig. 9. Ten major oilseeds (ending stocks in % of usage).

consideration that these calculations include the still high South American oilseed stocks as of September 1989 for Argentina and Brazil.

In our opinion, today's edible oil prices do not fully reflect the true market conditions. We agree that the sharp recovery in the production not only of oilseeds but also of Malaysian palm oil is a bearish factor overhanging the market. But if we incorporate those admittedly high supply estimates into a world balance, we realize a delicate equilibrium of supply and demand for the coming season (Fig. 11). Oil stocks have declined steeply in all major exporting and importing countries of the world during the past few months.

The chart shows that the peak was reached unusually early in December 1988 and that inventories of five major oils in 19 countries declined very sharply, falling below last year since April and below two years earlier since early September. Stocks declined particularly sharply in the U.S. as well as in the European Community, Rotterdam Bonded Warehouses, India

and China. Also Malaysian palm oil stocks fell below expectations during the past few months.

However, the oil markets were not ready to trade on the constructive new fundamentals this summer (Fig. 12). Prices of most oils and fats have shown pronounced weakness since May, despite declining stocks and strong demand.

One major factor for the weakness of oil prices is, of course, seen in the clearly improved soybean crop prospects and the resulting decline in prices for soybeans, the raw material for the major oil. But also the soybean oil share of the combined product value declined slightly in June/August, after a moderate recovery during March/May. The oil share only started to recover again in September.

Another important reason for the oil weakness has been a continued underestimation of actual demand. There appears to be a growing trend for more 'under the table' (i.e. unpublished) business in oils. In our opinion, the continuous underestimation of world oil import demand so far this year might be linked to the declining share of 'published purchases' as compared to 'total purchases' or 'total imports.' China, India and other big buyers have the obvious intention of covering their oil requirements at the lowest possible cost. This goal can obviously be reached more easily in a scenario in which import demand and weekly purchases are underestimated.

But global demand has been better than its reputation, causing the stocks of the 10 selected oils and fats analyzed here to decline sharply by 0.9 MT or more than one-tenth during the past 12 months.

European rapeseed oil is in very tight supply. It has become almost impossible to buy nearby quantities, following the huge exports of more than 100,000 T of rapeseed oil to China during August and September and good quantities shipped to North Africa and elsewhere. Rapeseed oil stocks in Rotterdam as well as in the Community are currently at their lowest level in many years, despite a record rapeseed crush in the July/Sept quarter. The carrying charge for the Feb/April position has disappeared compared with more

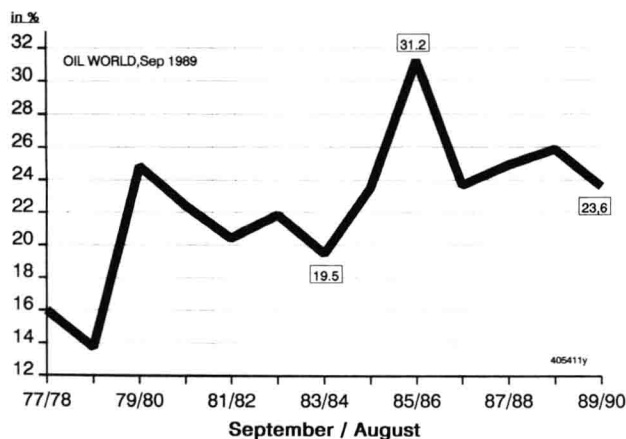


Fig. 10. Argentina, Brazil and U.S.A. (soybean ending stocks in % of usage).

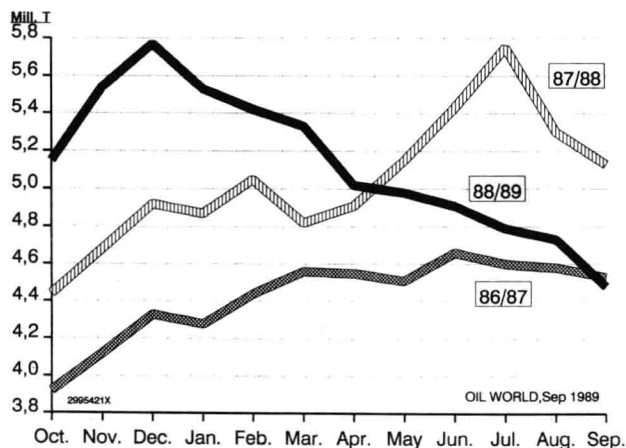


Fig. 11. Stocks in 5 major oils in 19 major countries.

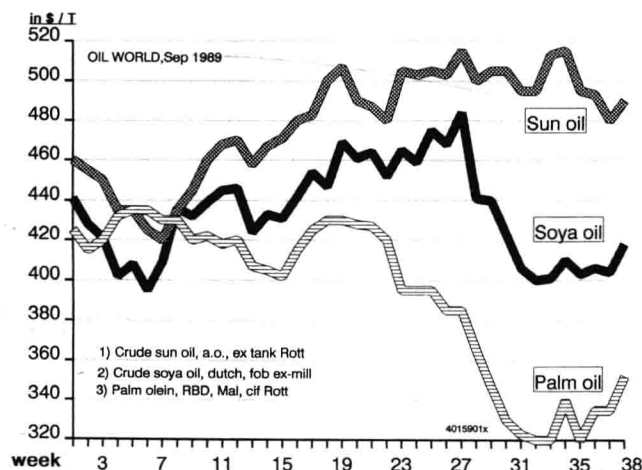


Fig. 12. Weekly price trend (Jan. 1 to Sept. 22, 1989).

than 7 hfl. per 100 kilos at the same time last year as shown by comparing September 1989 with the same month of last year in Figure 13.

Most of the recent price strength was limited to those nearby, as the participants in the oil market did not yet trust the bullish case. Disillusionment during the past year and the resulting lack of confidence are probably the major reasons for the still relatively low prices for the deferreds. Fundamentally, however, there is no supply relief in sight. EEC rapeseed crushings will decline sharply from November or December onward, even if more Polish rapeseed is imported.

A similar price situation exists in Dutch soybean oil (Fig. 14), although the Feb/April position is still showing a slight carrying charge due to the expectation of expanding EEC soybean crushings.

In the case of sunflower oil, however, we have, contrary to last year, been facing an inverted market for both Nov/Jan as well as Feb/April already since July (Fig. 15).

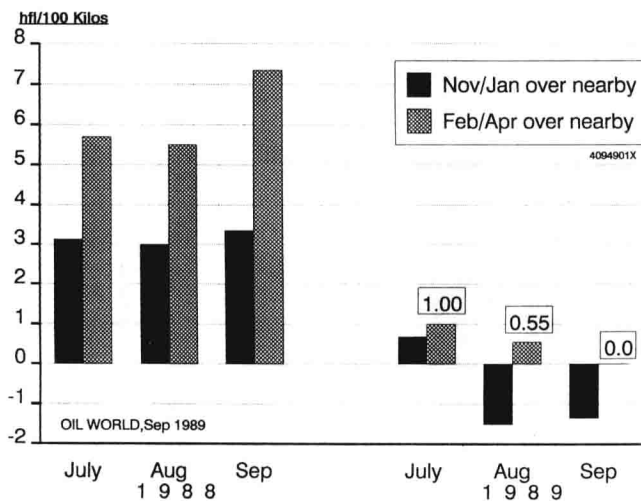


Fig. 13. Carrying charges for rapeseed oil, Dutch.

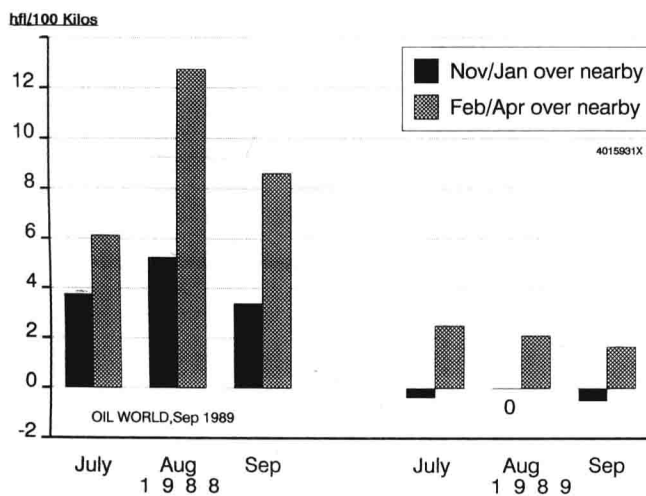


Fig. 14. Carrying charges of soyoil, Dutch.

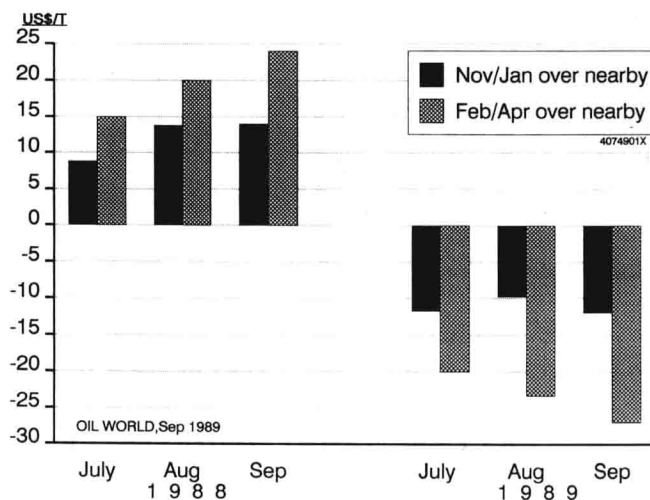


Fig. 15. Carrying charges for sun oil a.o., ex tank Rotterdam.

Soybean Oil is Unusually Firm Also in Brazil

The strong Brazilian basis FOB Rio Grande vis-a-vis U.S. soyoil futures is depicted in Figure 16. Despite a sharp increase in Brazilian soybean crushings during August and September and the resulting record-large oil output, Brazilian soybean oil (FOB Rio Grande) has been offered at less than 100 points under Chicago on the average of September compared with discounts of 600-700 points at the same time last year.

The current price situation reveals that there are no pressing supplies in Brazil either. The country's exports as well as domestic demand have been sufficiently high to absorb the record new production. Soybean stocks at the beginning of September are officially reported at 15% below a year earlier. In addition, the strong basis indicates that forward sales have been high. There exists the possibility that Brazil will become an importer of soybean oil again early next year.

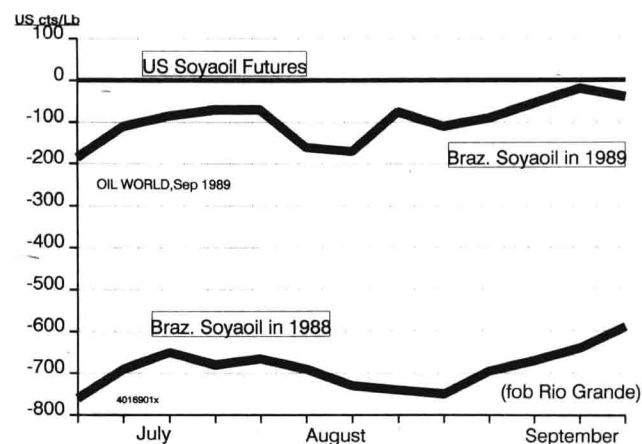


Fig. 16. Brazilian soy oil, FOB (nearby discounts versus U.S. futures).

As a result, U.S. soyoil has become more attractive (Fig. 17). Both Dutch and Brazilian prices have approached and partly exceeded the prices for U.S. soyoil, FOB Decatur. Although prices at the U.S. Gulf are still at a premium over other export places, the fact remains that U.S. soyoil today is far more competitive than a year earlier and could soon attract additional business.

Price prospects for next season seem clear. The current scenario for oils and fats — low world inventories and a good pace of demand — could easily trigger significant price movements, if small changes in the expected developments of supply or demand occur (Fig. 18). We feel that the potential oil price risk to the upside is greater than to the downside for the new season as a whole.

Stocks of 10 selected oils and fats have been cut sharply by 0.9 MT during the past 12 months. A further decline is hardly conceivable for many countries where stocks right now are small. This is true partic-

ularly for the EEC, Rotterdam bonded warehouses and India, but inventories are below last year in South America and the U.S.

It appears that the recent sharp decline in world oil inventories is not yet fully reflected in today's oil values, though we realize that oils are also affected by the bearish implications of the expanding U.S. soybean harvest.

Virtually all of the 1989/90 world demand has to be covered by new production. When we look at the prospects for individual oils and fats, we see declines in cotton oil and sun oil and only marginal scope for higher production of groundnut and rape oils. All oils and fats other than soy and palm might, at best, increase by 0.5 MT — a comparatively small increase (Fig. 19).

World production of palm oil will continue to rise sharply by approximately 0.7 MT next season (Fig. 20). While Malaysian trees are unlikely to repeat the

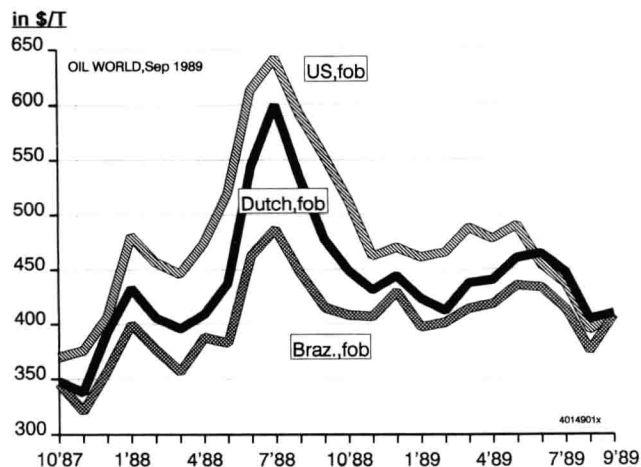


Fig. 17. U.S. oil premiums dwindling (monthly soyoil prices).

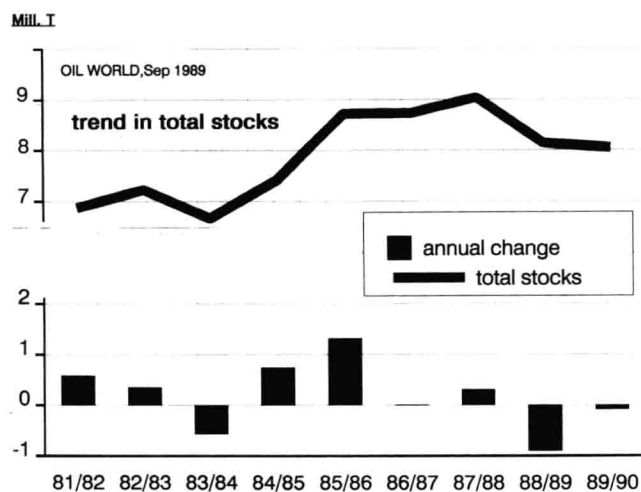


Fig. 18. Ending stocks (10 oils and fats).

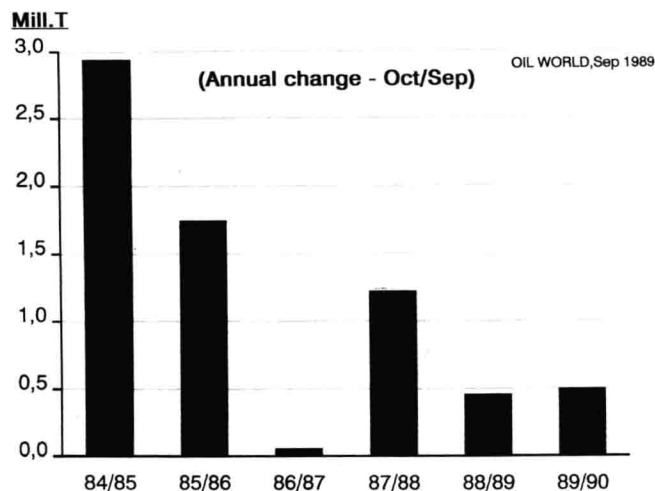


Fig. 19. World production of other 8 oils (soy and palm oils excluded).

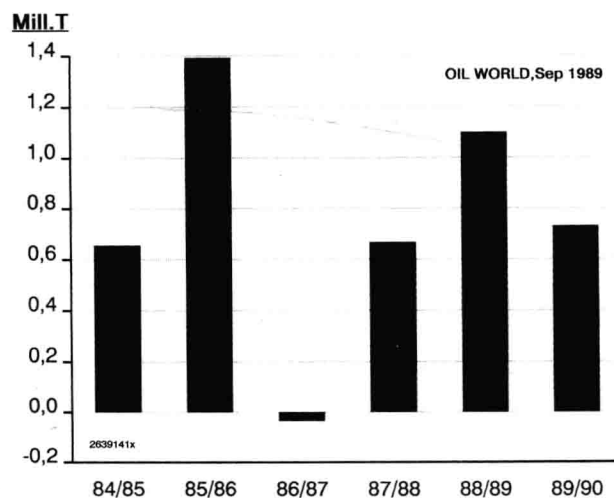


Fig. 20. World production of palm oil (annual change — Oct/Sep).

excellent yield performance of 1988/89, a continuous expansion of the mature area and a sharp prospective increase in Indonesia should bring world palm oil production to a record 10.3 MT.

But palm oil has probably done enough pricewise to attract sufficient demand. Figure 21 shows the enormous discounts palm oil has developed particularly vis-a-vis sun oil but also vis-a-vis soy and rape oils since February. This has stimulated many consumers to satisfy a larger share of their requirements by palm oil, in turn, causing combined Malaysian and Indonesian net exports to increase very sharply in April/Sept 1989. The recent narrowing of the price discounts vis-a-vis soy and sun oils has been too tight to really threaten the excellent price competitiveness of palm oil, which should promote continuously large exports.

Malaysian palm oil production has passed its peak and is now declining seasonally. Current palm oil stocks are lower than feared a few months ago. There is good reason to expect the recent recovery in Malaysian oil prices to continue. The just launched price support cartel of major Malaysian palm oil plantations will probably not be forced to become active as prices should remain above the agreed trigger level of 720 Ringgit a tonne in the months ahead.

World production of soybean oil will probably be boosted by 1.3 MT in the coming season owing to strong meal demand and a corresponding increase in soybean crushings (Fig. 22). This is the largest annual growth in more than 6 years, following the plunge of 0.9 million registered in 1988/89. But this will not be causing surpluses in oil. Our current analysis of strong oil demand plus low stocks actually indicates that the market will need all the new soyoil output for covering demand.

In addition to the 10 oils analyzed, there is also very little relief from other oils and fats. World supplies of olive oil, for example, will continue to decline in 1989/90, if the again disappointing production estimates materialize for the Mediterranean countries.

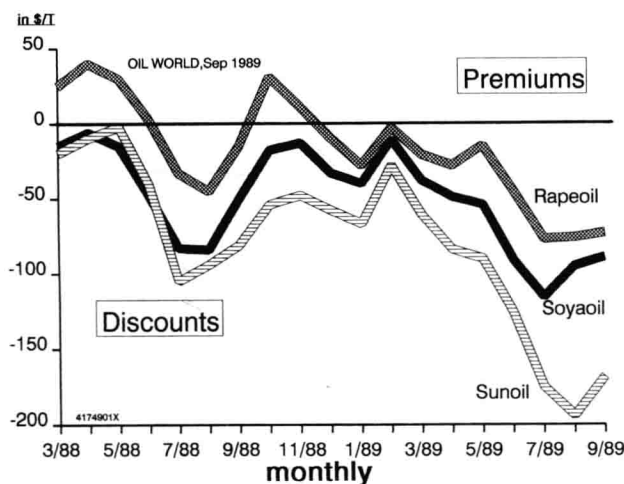


Fig. 21. Growing palm oil competitiveness (crude palm oil vis-a-vis:).

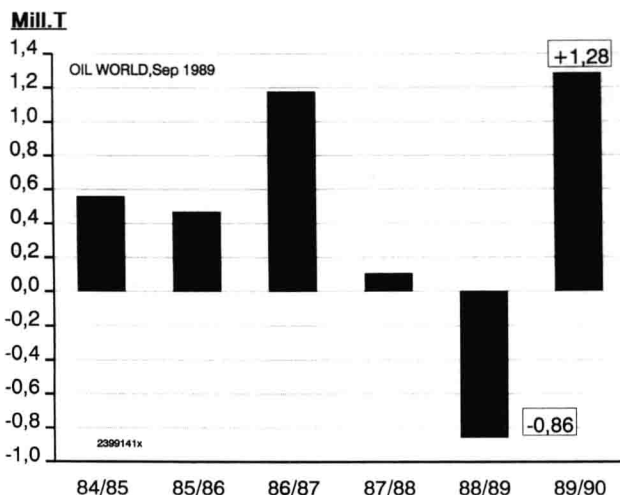


Fig. 22. World production of soyoil (annual change — Oct/ Sep).

But lack of confidence has been and probably still is the major characteristic in the oil market. It is reflected in unusually small forward buying by many consumers, many of them probably badly covered right now. Last week's consolidation in oil prices should be temporary on the market's path to higher levels some time within the next few months. But additional constructive supply or demand inputs might be required to trigger a recovery.

For example, from India, domestic oil prices have strengthened significantly since March and have been running well ahead of last year since July (Fig. 23). Domestic Indian oil demand has been very strong so far this year and imports too small, creating a shortage of supplies in many parts of the country and forcing state governments like that of the Gujarat to restrict the flow of groundnut oil to other states. With low stocks on hand, India will probably become a more active buyer already in October or November (Fig. 24).

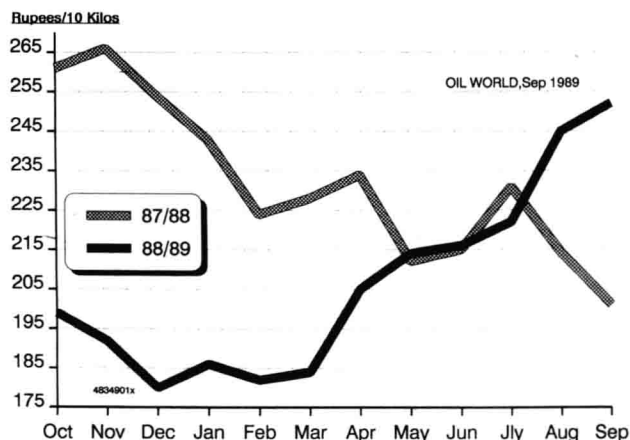


Fig. 23. India groundnut oil (monthly prices, Bombay).