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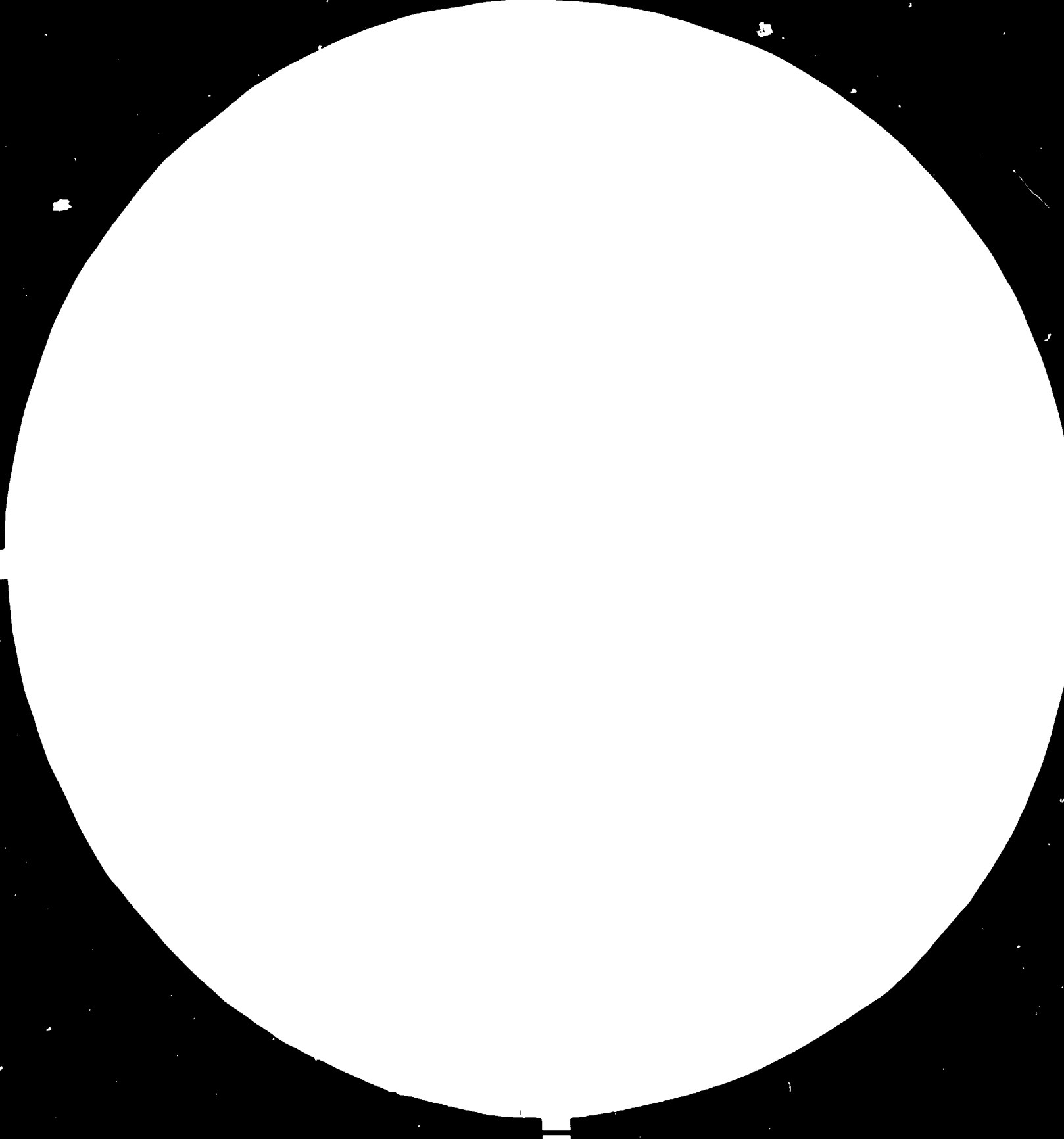
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Agricultural machinery industry in
Western European countries.]

PRESENTATION OF THE STUDY

12639

rest of the study

1. INTRODUCTION

The aim of this study is to obtain and present current production and employment data for the major European producers of agricultural machinery during the last four years.

More than 50% of the European production is manufactured in Germany, France, the United Kingdom and Italy. A significant agricultural machinery industry is also located among other European countries such as Sweden, Spain, Finland, Austria and the Netherlands. However, the production of the latter countries is mostly comprised of complementary parts that are added to tractors or other basic machines, to suit specific market demands.

Data about current production and employment was gathered from different sources, but the core of the information came from associations of manufacturers on a national basis.

The study aims also to present information about the market outlook of the agricultural machinery industry and its current situation as related to the developing countries. Much of the information for the latter section was acquired through communication with manufacturers and discussions with market analysts.

The corporate inter-relation between production in Western Europe and the U.S. is strong due to the transnational nature of manufacturing companies. Thus, information of the the U.S. market is included as far as is necessary, to present a correct overview of production on a global basis. Japan's market share is also rapidly increasing as it has specialized its production in small tractors, making it also essential to present data of its production.

Given the various sources of information and divergencies in definition, the study attempts to present the data that is homogeneous and contributes to an intelligible study of the market.

No production data for the 1983 European output is available (except for the first two months in France). The tables presented are generally limited to 1982.

2. THE PRODUCT

The production of tractors represents more than half of the total agricultural machinery output in Western Europe. The percentage of tractors in 1982 of the total production of agricultural machines was about 53% in Germany, 40% in France, 73% in the U.K. and 51% in Italy.

Tables in this report present for some countries a break-down of tractor production by horse-power. This classification has the advantage of giving the market trend in accordance to tractor categories.

With regard to other agricultural machine production, break-downs are presented for those countries where data is available. The classifications are generally divided into:

- soil preparation and cultivation machinery: ploughs, cultivators, hoes, spreaders, planters, rollers,
- harvesting and thr^ashing machines: harvesters, balers, mowers,.....
- handling equipment: elevators, conveyors,.....
- farm dairy equipment.

3. THE MANUFACTURERS

The multinational companies that produce agricultural machinery concentrate on supplying the market with the core of the equipment. This means, heavy machinery such as tractors, combine harvesters, balers and the like.

Some of this ^{etc} multinationals specialize in agricultural machinery production, others are more diversified. In terms of turnover, large firms like Massey-Fergusson are 90% product specialized, John Deere 80%, whereas Ford is 5% and Renault 3.5%. The go-betweens are firms like International Harvester with 50% and Kubota with 40% product specialization.

PRODUCTION OF AGRICULTURAL MACHINERY

1. INTRODUCTION

With 450 main types of machines, the agricultural machinery industry employs in Western Europe 250,000 people on 4,000 production plants. The industry related labour force that is indirectly mobilized by this market is estimated to amount to 200,000 people. This force is mostly engaged with the retail business and the firms subcontracted for project basis work.

As per calculations of the Credit National in France, the annual turnover of the agricultural machinery industry in Western Europe is valued at US \$ 12 billions in 1981. The approximate breakdown is around US 5.7 billions in the tractor divisions and US 6.3 billions for other agricultural machines.

The total world output of tractors was approximately 1.5 million units in 1981, of which 470,000 were manufactured in Western Europe, 225,000 in the U.S. and 240,000 in Japan. The balance is manufactured in the communist bloc and the Third World.

Of the total turnover in the industry of agricultural machinery in Western Europe, an estimated 5% is allocated for research and development. The most outstanding innovations in the technology of this industry is directed towards the improvement of comfort and security, the usage of electronics and the efficiency of production lines.

Of the total Western European production, 35% is traded in the form of exports, of which 70% remains within the delimitations of the industrialized countries. These figures are statistically documented in CEMA reports.

2. THE AGRICULTURAL MACHINERY INDUSTRY

The market of agricultural machinery has, in general terms, undergone stagnation since 1977. The core of the industry - the heavy machinery component - has shown rapid slow-down in demand.

As noted above, the production of the heavy machinery is concentrated among the multinational firms. Of the total machinery output, 70% is manufactured by these multinationals. The concentration of production is such that about 30% of world output is shared by three North American based companies: John Deere, International Harvester and Massey Ferguson. Other multinationals have specialized in specific lines of the industry and control substantial shares of the market. That is the case for Allis Chalmers and Claas in combine harvesters and the Japanese Kubota in below 39 HP tractors.

Table 1

Sales
(Turnover) of major O.E.C.D. manufacturers
of agricultural machinery in 1981 (in Millions US \$)

Company	Country of registration of the parent company	Turnover
JOHN DEERE	USA	4 665
INTERNATIONAL HARVESTER	USA	2 979 ✓
MASSEY-FERGUSON	Canada	1 587 <i>only Canadian sales?</i>
FIAT	Italy	1 174
FORD	USA	1 200 -1-100-(e)
NEW HOLLAND (Agricultural machinery division of the Sperry Rand Corporation)	USA	1 087
KUBOTA	Japan	951 <i>2 240 in 1980 of 25,000 81</i>
CASE	USA	1 250 -900-(e)
ALLIS-CHALMER	USA	700
K.H.D.	Germany	505
RENAULT-DMA	France	314
CLAAS	Germany	309

(e) estimation

Source: Assembly reports

The period after World War II, marked by a rapid expansion of the market, did not result in the establishment of Western European machinery industries. The market demand was supplied by firms of U.S. origin. The exception is the Italian company Fiat, which has managed to secure a substantial market share both at home and abroad. Of the Western European market, 14% was controlled by Fiat in 1981. X

3. INDUSTRY OF TRACTORS

The dominating companies in the production of tractors - in terms of world production - are of North American origin. World production in this context does not account for the output from closed economies in the communist bloc. In accordance with the production figures of the Credit National, five of these companies supply 57% of tractor output. Fiat and SAME follow with a market share of 13%, German companies with 5.5% and the French Renault with 2%.

Table 2 shows production by region and country of the 20 major manufacturers operating on Western European soil.

4. CURRENT PRODUCTION AND EMPLOYMENT

The market behaviour of supply of the agricultural machinery products has not been homogeneous among the major suppliers on a country basis. In table 3 we are able to observe the evolution of the market on the index scale of 100 in 1976 for volume and value. The mix of prices and volume on this table shows a similarity in behaviour between the U.S. and British markets, and a rather different behaviour for the other major producing countries.

The steep decline in volume for the U.S. and Britain is the result in changes of production mix. These markets have rapidly specialized in the production of larger machinery, especially the tractor component, and have focused on the modernization of this equipment through the utilization of electronics. 6

The volume index shows a general deterioration of the market in 1981. The currency component of this table is shown for the purpose of trend analysis, given the very volatile currency markets in this period. The value scale is a better indicator of real movements. Data for 1982 is not available in equal detail. a.u.

Table 4 presents the number of people involved in the production of agricultural machinery in some European countries. It is to be noted that despite a recovery in 1982 to 1980 levels, employment continued to decline. By country, the average annual decrease was approximately 4% in Germany, 3% in France, 3% in Finland and 13% in the U.K.

Table 5 presents the production of tractors in some European countries in current US dollar terms. The data is presented for both fully assembled tractors in the country of origin, and for unassembled tractors that are exported and further assembled in host countries. If constant US dollar figures necessary, it is possible to derive from this table:

Table 3

PRODUCTION OF AGRICULTURAL MACHINERY IN MOST IMPORTANT
COUNTRIES OF PRODUCTION
MARKET EVOLUTION INDEXES BY VALUE AND VOLUME
(MILLIONS OF DOLLARS AND MILLIONS OF UNITS OF CURRENCY BY COUNTRY)

		1976	1977	1978	1979	1980	1981	Average rate of growth 1976-1981
USA	Dollar	8 421	9 519	9 880	12 038	11 315	10 750	5,0
	Value	100	113	117,3	142,9	134,4	127,7	5,0
	Volume	100	105	93	88,3	59,7	38	-10
F.Germany	D.M. DM	2 398	2 824	3 175	3 745	3 587	3 038	5,6
	DM	6 040,3	6 567,4	6 395,5	6 864,6	6 513,3	6 865,8	4,1
	Value	100	108,7	105,5	113,6	107,8	113,7	2,6
	Volume	100	105,7	102,9	106,5	95	92,7	-1,5
France	F.Fr. FF	1 583	1 616	1 864	2 220	2 308	2 033	3,8
	FF	7 566,9	7 944,1	8 776	9 437,6	9 728,7	10 703	7,8
	Value	100	105	115,9	124,7	128,6	141,4	7,2
	Volume	100	98,2	100,2	98,2	90,5	87,2	-2,4
U.K.	Pounds £	1 849	1 853	1 516	2 646	2 182	-	7,9(1)
	£	1 024,4	1 051,6	789,8	1 247,2	937,9	-	5,4(1)
	Value	100	103,6	77,1	121,7	91,5	-	-2,1(1)
	Volume	100	82,9	54,1	76,4	50,9	-	-15,5(1)
Italy	Lire L	1 894	2 123	2 593	2 744	3 319	2 629	10,0
	L	1 578 333	1 878 761,1	2 200 628	2 280 035,6	2 842 169,3	3 090 150	21
	Value	100	119	139,4	144,4	180	195,7	14,3
	Volume	100	104,1	110,9	98,7	105,1	96,3	-0,7
Denmark	D.Crowns DKK	278	240	304	380	-	-	(6,1)
	DKK	1 681,8	1 440,6	1 670,3	2 000	-	-	(3,7)
	Value	-	(100)	(115,9)	(138,8)	-	-	-
	Volume	-	(100)	(66,9)	(50,5)	-	-	-
Spain	Pesetas Ptas	308	348	502	537	528	371	2,7
	Ptas	20 952,4	28 524,6	38 645,1	36 570,4	37 857,6	36 878,7	12,5
	Value	-	-	(100)	(94,6)	(98)	(95,4)	-
	Volume	-	-	(100)	(82,7)	(74,8)	(64)	-
Sweden	S.Crowns SEK	323	248	208	199	192,5	144(e)	-9,2
	SEK	1 422,9	1 117,1	885,1	844,8	814,1	780,7	-7,7
	Value	-	(100)	(79,2)	(75,6)	(72,8)	(69,9)	(-7,0)
	Volume	-	(100)	(70,7)	(60,2)	(52,7)	(46,2)	(-11,3)

PRODUCTION OF AGRICULTURAL MACHINERY IN MOST IMPORTANT
COUNTRIES OF PRODUCTION
MARKET EVOLUTION INDEXES BY VALUE AND VOLUME
(MILLIONS OF DOLLARS AND MILLIONS OF UNITS OF CURRENCY BY COUNTRY)

		1976	1977	1978	1979	1980	Average rate of growth 1981 1976-1981	
Austria	Schilling	200	269	318	-	-	-	(18,8)
		3 590,7	4 141	4 622,1	-	-	-	
	Value	100	115,3	128	-	-	-	-
	Volume	100	109,5	116,5	-	-	-	-
Netherlands	Guilder	158	219	241	330	340	330	14,5
		418,6	536,5	520,6	662,3	680	741,6	11,3
	Value	100	128,2	124,4	158,2	162,4	177,2	12,1
	Volume	100	123,3	116,6	145,5	144,3	152,4	8,8
Finland	F.Marks	148	114	113	132	187	221	17,7
		562,5	458,8	452	514,3	795,7	860,9	17,6
	Value	100	81,6	80,3	91,7	141,4	153	8,9
	Volume	100	73,5	67,5	71,8	101,1	99,5	-0,1
Switzerland	S.Francs	54	71	78	99	110	100	18,2
		135	169	141,8	162,3	187	196,5	9,9
	Value	100	125,2	105	120,2	138,5	145,5	7,8
	Volume	100	123,9	103,3	115,3	128,9	126,8	4,8

(1) period 1976-1980
(e) estimated

Note: The value indexes were calculated on the basis of national currencies. The deflator used to calculate the volume evolution was derived from the agricultural machinery prices furnished by CEMA. For the US, the F.B.C.S price index was used to acquire a deflator.

Source: Credit National
April 1983

Table 4

Employment

	1979	1980	1981	1982
GERMANY	60 863	57 690	55 738	54 487
FRANCE	38 759	35 994	35 562	34 700
U.K.		26 100	20 600	19 200
ITALY				
NETHERLANDS	5 000	4 900	4 500	
FINLAND		5 600	5 400	5 300
SWITZERLAND				3 000
BELGIUM		7 654	7 182	6 404
SWEDEN	2 703	2 359	2 308	2 200

Unit: Number

Table 5

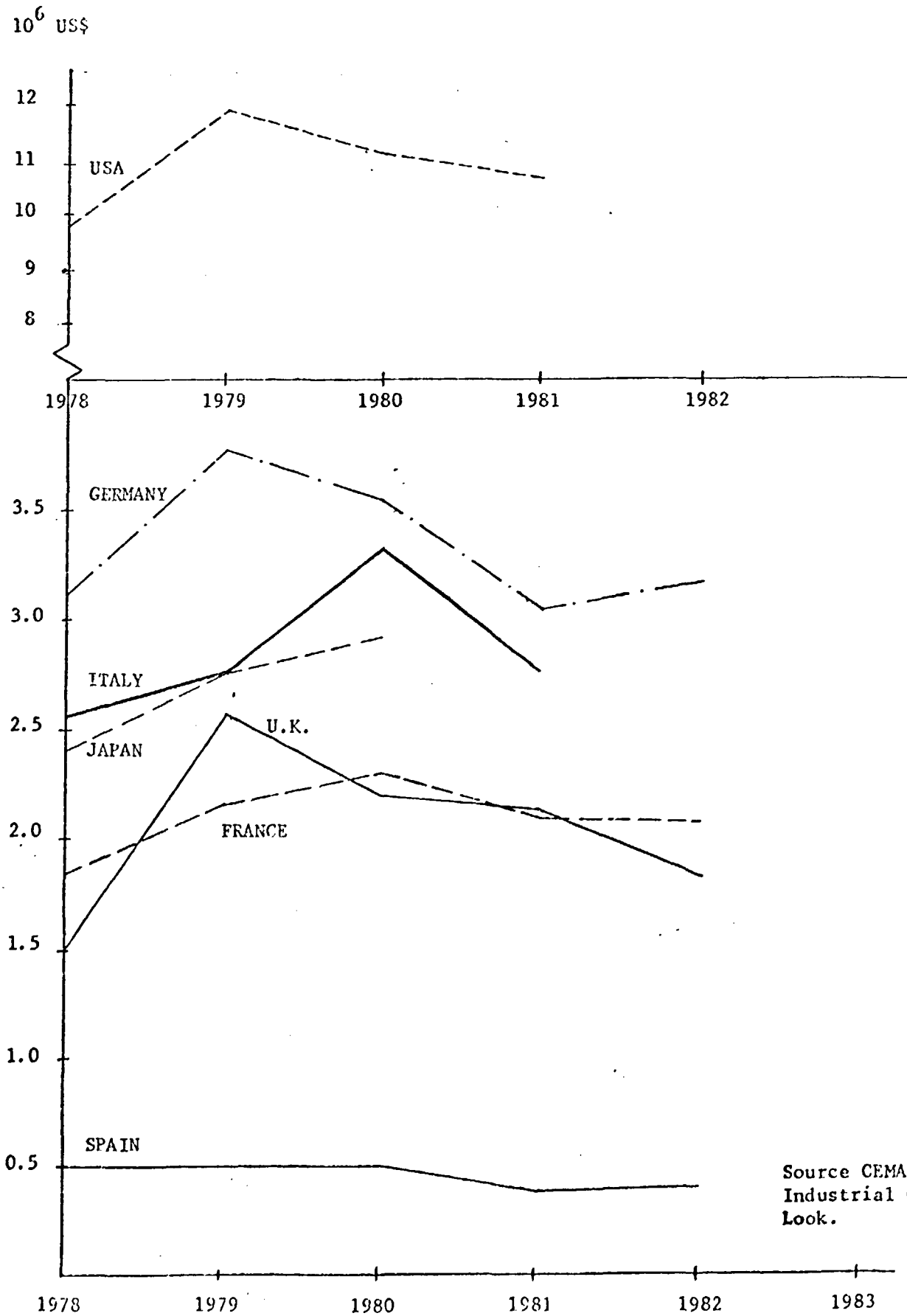
Production of Tractors in US \$ 10^6 ?

	1979			1980			1981			1982		
	C	U	V	C	U	V	C	U	V	C	U	V
GERMANY	1 526	347		1 471	310	100	1 289	244	99.1	1 370	281	110.2
FRANCE	591	313		617	290	100	542	268	100.5	596	218	105.7
U.K.	1 132	877		1 282	277	100	1 150	536	95.5	931	399	85.1
ITALY	1 185	170		1 518	254	100	1 146	255	88.8			
DENMARK	0	0		7	0		6	0				
NETHER- LANDS	0	0		0	0		12			12		
AUSTRIA		0		156						156		
SWEDEN	84	17		81	25	100	49	3		49	3	
FINLAND	45	15		62	20	100	66	32		53	16	80.9
SWITZER- LAND	16	0		16	0	100	32		132.9	34		142.2
BELGIUM										108		
SPAIN	336	31		309	37	100	196	32	80.5	216	35	86.6

C = Complete tractors
 U = Unassembled tractors
 V = Volume Index

Source: CEMA

PRODUCTION OF AGRICULTURAL MACHINERY



Source CEMA & US
Industrial Out-
Look.

$$\text{Constant US \$ (K}_{1981}) = (C_{1980} + U_{1980}) \times \frac{V_{1981}}{100}$$

Enough data ^{are} is not available to acquire precise constant US dollars figures for assembled and unassembled tractors separately.

The increase in the production of unassembled tractors reflects the strategy of production decentralization pursued by multinational corporations. This strategy secures markets in countries where policy actions have been taken to safeguard employment and to curb foreign reserve losses due to trade deficits.

5. PRODUCTION IN SOME EUROPEAN COUNTRIES

5.1 Germany

In terms of country output, Germany was in 1981 the third largest producer. The U.S. and the U.S.S.R. were first and second respectively. Germany's turnover was in the 7 billion D.M. bracket.

Tractors represented in 1981 53% of total agricultural machinery production in this country, followed by harvesting machines.

Among 350 manufacturers in 1980, an approximate 58,000 people were employed. Labour mobilized indirectly represented about 60,000 people. In terms of the German domestic market, the production of the heavy agricultural machinery is concentrated among four companies: KHD, Claas, Fendt, IHC and John Deere.

This means that in terms of the total 1981 turnover of the industry, among 12% of the manufacturers a 62% share of the turnover was secured. See table 6.

The complementary machinery - attachment and specialized gadgets - is produced by a variety of smaller industries. These entities, for the most part (61%), employ less than 200 employees.

Table 7 presents output in terms of current D.M. for the various product groups for 1979 and 1981.

5.2 France

The turnover of the agricultural machinery industry in 1982 totalled about 13 billion F.F. Compared to 1981, this translates to an increase of 15% in current F.F., and 3.5% in constant F.F. During the same period, production increased by 2.5%.

The concentration of production in France is such that from a total of 490 enterprises manufacturing agricultural machinery, 27% of these firms secured 90% of the total industry turnover. As per statistics of the Syndicat General de Constructeurs de Tracteurs et Machines Agricoles, the break-down of production among manufactures is as follows:

Table 6

Production of Tractors

Country: GERMANY

Manufactures	(ranking in 1981)	1982		1981		1982/1981	
		Units	Market share	Units	Market share	Units	Diff. Units
1. KHD	(2)	7.836	18,9	7.310	17,8	+ 526	+ 7,2
2. FENDT	(3)	7.813	18,9	7.182	17,5	+ 631	+ 8,8
3. IHC	(1)	7.018	17,0	8.130	19,8	- 1 112	- 13,7
4. J. DEERE	(4)	3.675	8,9	3.055	7,4	+ 620	+ 20,3
5. DAIMLER BENZ	(5)	2.639	6,4	2.781	6,8	- 142	- 5,1
6. MAS. FERGUSON	(6)	2.743	6,2	2.743	6,7	- 174	- 6,3
7. FIAT	(7)	1.627	3,9	1.418	3,5	+ 209	+ 14,7
8. SAME	(10)	1.026	2,5	882	2,1	+ 144	+ 16,3
9. EICHER	(8)	1.013	2,4	1.327	3,2	- 314	- 23,7
10. RENAULT	(9)	885	2,1	971	2,4	- 86	- 3,9
11. HOLDER	(11)	483	1,2	522	1,3	- 34	- 6,5
12. SCHLOTER	(12)	488	1,1	492	1,2	- 44	- 8,9
13. STEYR	(13)	432	1,0	443	1,1	- 11	- 2,5
14. ZETOR	(15)	423	1,0	342	0,8	+ 81	+ 23,7
15. FORD	(14)	382	0,9	343	0,8	+ 39	+ 11,4
16. LAMBORGHINI	(16)	299	0,7	305	0,7	- 6	- 2,0
17. D. BROWN	(17)	152	0,4	219	0,5	- 67	- 30,6
18. UTB	(18)	60	0,2	97	0,2	- 37	- 33,1
Others		2.595	6,3	2.536	6,2	+ 59	+ 2,3
TOTAL		41.380	100,0 %	41.098	100,0 %	+ 282	+ 0,7

Source: Kraftfahrt-Bundesamt

Table 7

Country: GERMANY

	1979	1980	1981
Machinery for soil cultivation	269.0	259.5	282.9
Planting, seeding & fertilizing machinery	255.4	236.4	235.6
Sprayers & dusters	112.6	107.1	107.6
Irrigation equipment	23.0	21.4	35.2
Harvesting machines	1 382.5	1 344.3	1 452.0
Crop preparation machines	34.0	30.4	28.2
Farm equipment	148.3	128.5	106.0
Other agricultural machinery	279.8	263.1	272.8
Accessories & parts	546.6	541.5	550.7
Handling equipment	171.1	160.9	137.3
Farm wagons	338.2	336.3	313.7
Accessories & parts for transportation & handling equipment	43.1	39.1	36.4
Farm dairy equipment	296.7	302.7	314.9
Total Agricultural machinery	3 901.2	3 771.7	3 874.0
Cutlivers	88.8	81.3	67.5
Tractors < 34 HP	74.1	79.0	39.0
35 HP 50 HP	358.8	217.5	236.0
> 50 HP	2 469.3	2 354.7	2 369.8
Accessories & parts	645.6	562.2	579.5
Total Tractors	3 636.8	3 294.8	3 292.0
Total production of all machinery	7 538.1	7 066.5	7 166.0

Tractors / *All Ag Machinery* .48 .47 .46

Source: VOMA

Value: M.D.M.

in the US *Tractors* / *Total Farm Mach* ≈ .3

- Seven multinationals secured a 37.5% of the turnover of the industry in 1981. These firms specialize in the heavy machines: tractors, combine harvesters, and balers.
- Nineteen firms dependent on foreign capital secured 7.5% of the 1981 turnover. These firms specialize in the narrow segments of the industry: dairy equipment, small cultivators, attachments, and the like.
- Another 454 smaller firms run by French investments totalled 55% of the total industry turnover. These firms fall under the category of specialized equipment producers.

Table 8 shown product groups for some firms operating in France. The turnover of these firms for 1980 and their country of origin are included.

5.3 The United Kingdom

The total turnover of the agricultural machinery industry was 1,044 million Pounds in 1982. This represents a decrease of 1% compared to 1981 in current terms, 7% in real terms. As a result of production mix changes in the industry in the U.K., as evidenced by the volume and price statistics in Table 3, the number of enterprises have decreased in recent years. This phenomenon is a result of the merging together of firms to increase the capacity to produce larger and electronically sophisticated machinery.

The increase in size of machinery manufacturers, and subsequent decrease in number, is paralleled by the increase in size of farms and the decrease in their number respectively. The demand for larger and more powerful machinery in the domestic market is understandable under such market conditions: production intensification on larger units of land.

Table 10 presents the results of inquiries on the sales of agricultural machinery (excluded tractors) in the U.K. by product groups during the last four years. The inquiries were restricted to establishments with a minimum employment level of 50. They represent an approximate 60% of the total industry.

The table is skewed to the extent of product group overlapping under the period covered. However, the relative importance of product groups in the market is well described.

Table 8

Country: FRANCE

	Country of Registration of the parent Company	Turn over in 1980	Product group					
			Tractors	Harvest. Equip.	Soil Cultiva.	Spreeders	Handling Transp.	Vintage Equip
INTERNATIONAL HARVESTER	U.S.A.	1 926.8	X	X	X	X	X	X
MASSEY- FERGUSON	C	1 778.1	X	X				X
JOHN DEERE	U.S.A.	1 447.4	X	X	X	X	X	X
KUHN	SW	365.9		X	X			
HUARD U.C.F.	F	323.5			X	X		
HESSTON France	U.S.A.	227.5		X		X		
IRRI France	F	185.0				X		
CLAAS France	G	158.3		X			X	
JODET-GOUGIS	F	155.5				X		
BRAUD	F	139.0		X				
HOWARD ROTOVATOR	U.K.	130.0		X	X	X		X
HEYWANG	F	128.0		X	X	X	X	
BERTHOUD	F	117.6				X		
RIVIERRE CASALIS	F	99.9		X			X	
TECNOMA	F	89.0				X		X
VICON France	D	82.3		X		X		
MOREAU	F	54.4			X	X		
BOBARD	F	47.6				X		X
ALFA LAVAL	S	493.7						X
FIAT SOMECA	I	851.5	X	X	X	X	X	
RENAULT D.M.A.	F	1 530.0	X					X
NEW HOLLAND France	U.S.A.	NA		X			X	

FRANZ	G	NA	X			X	X
FRANZ-SONACA	F	851.5	X	X			
VANDEL	F	120.0(e)	X		X	X	
WHITE	U.S.A.	NA	X				
BEAUVAIS-ROBIN	F	23			X		
BELIN INTERNATIONAL	F	200		X	X	X	
BOURGUIGNON	F	NA			X		X
BEHNDT	F	NA		X	X	X	X
FORTSCHRITT-SMAFA	G	30.8		X	X	X	X
BREGOIRE-DESSON	F	NA			X		X
BUSTIN	F	NA			X		
BONE BERNHARD FR	F	NA			X	X	
BELY FRANCE	F	NA			X		
BAUD	F	19.4			X		
BELIGIEUX	F	NA			X		
BETHELOISE CONSTRUCTIONS MECANIKES	F	7.0(e)			X	X	
BUDUREAU	F	70		X			X
BRIMONT	F	106					X
BOUTACIER	F	NA					X
BACHEUX	F	79.6					X
DIABOLO	F	NA					
BULLWOOD-DIVAL	B	30.0					X
BASCOIGNE MELOTTE)	U.K.	100.0(e)					X
BEMENIA	F	30					X

e) estimation 1981

Canada	F	France	U.K.	United Kingdom
Switzerland	G	Germany	U.S.A.	United States
Italy	D	Holland	S	Sweden

Source: DUN & BRADSTREET (La France des 10.000) & Assembly reports.

Table 9

Country: FRANCE

	1979	1980	1981	1982 [*]
Machines for soil cultivation	39 563	32 784	34 434	40 600
Planting, seeding, & fertilizing machinery	78 246	70 584	63 416	56 900
Sprayers and dusters	279 510	290 755	311 169	280 200
Harvesting machines	46 958	43 094	32 612	28 670
Other agricultural machinery	13 539	11 347	10 261	10 000
Vintage machines	291	520	847	1 350
Handling equipment	13 826	13 609	13 090	17 000
Farm wagons	17 771	21 449	18 865	17 000
Cultivations	110 673	84 526	74 590	77 900
Tractors:				
< 34 HP	78	55	30	73
35 - 50 HP	8 714	7 104	5 504	4 206
> 50 HP	37 658	31 845	32 833	35 821

Source: SYGMA

Syndicat Général des Constructeurs de Tracteurs et Machines Agricoles.

* Estimation

Unit: Number

Table 10

Country: UNITED KINGDOM

	1979		1980		1981		1982	
	a	b	a	b	a	b	a	b
Soil preparation & cultivation machinery								
* ploughs		5 356		5 597	11	7 048	11	7 973
* cultivators & hoes	12	12 643		8 932	9	7 476		8 100
* disc harrows	11	2 695		2 716	6	2 715	5	2 927
* drills	14	6 768		6 632	10	5 056	7	7 929
* fertilizing & spreading machines		3 556		5 668	9	4 442		8 110
* plombers, rollers . . .	12	4 768		3 325	7	3 288	7	1 286
* parts	24	19 435		19 402	15	16 542	13	18 476
Harvesting & threshing machinery								
* harvesters				10 434		8 447		5 080
* balers	6	20 294		16 037	5	13 769		7 371
* mowers		6 397		5 127		2 655		2 940
* feed processing silage making machinery		9 246		7 413		6 743		4 113
* others				14 263	18	16 988	14	14 352
* parts	26	12 483		16 019	25	11 306	17	8 447
Farm Dairy equipment		18 537		15 851		18 010		16 867
Miscellaneous agricultural machinery				14 347	21	13 775	14	10 826
Elevators & conveyors		7 498		5 507	14	5 572	12	4 361
Other handling equipment							26	20 457
Parts	54	26 329		27 588	33	1 907	35	17 153
Unclassified sales		3 039		3 150		2 252		2 935

a: number of enterprises

b: total sales in current pounds

5.4 Italy

The agricultural machinery industry in Italy underwent in 1981 and 1982 a general decline most evident in the production data available.

	In tonnes		
	<u>1980</u>	<u>1981</u>	<u>1982</u>
Tractors	330,388	279,200	263,100
Unassembled tractors and attachments	86,500	78,500	82,800
Agricultural machinery (except tractors)	411,100	384,700	377,700
TOTAL	827,988	742,400	723,600

Tractor sales decreased to approximately 55,000 units in 1981 as compared to the average of 65,000 units during the five preceding years.

The market share of the Italian industry is concentrated among two producers, Fiat Trattori and Same Lamborghini, who have secured 36% and 33% of the domestic market respectively. Fiat totalled a turnover of 1,470 billion Lira in 1981, and employed a work force of 12,600 people. Its unit output was of 73,000 tractors, which in terms of world production translates to 10%.

Interestingly, Fiat Trattori and John Deere were the only two major agricultural machinery producers who made profits in 1981. The reasons are different for both companies:

- aa Fiat secured a larger share in world markets through its products of special tractor models for tropical crop production.
- bb John Deere was able to maintain its U.S. domestic sales stable through streamlined investments that correspond to growing demands for larger tractors.

Fiat production is exported to 70% of total output (1981). The company has infiltrated the U.K., Greek, Irish and Spanish markets with much success, largely aided by beneficial currency exchange terms. It has consolidated its supply of tractors to the developing world, where 30% of its total sales in 1981 were absorbed.

With a turnover of approximately 4000 billion Lira in 1981, Same Lamborghini was placed as second manufacturer in Italy. Its production is directed toward the domestic market. Its sales of tractors decreased by-31% in 1981, mowers-14,5%, combine harvesters -19% and cultivators by-21%.

5.5 The Netherlands

Table II presents the production of agricultural machinery by product groups in the Netherlands between 1978 and 1981. The general trend is similar to those of other European countries, much due to its lack of heavy machinery production. The industry in the Netherlands specializes on attachments parts specific to internal demand, thus making the manufacturers highly dependent on market conditions of the supplying countries.

5.6 Summary

The recession period has forced the agricultural machinery industry in Western Europe to specialize production. This specialization has been congruent to the industry's comparative advantage in relation to domestic market demands, access to overseas markets, currency exchange advantages and technology.

The U.K. manufacturing firms have responded most directly to internal demand developments and focused production on larger machinery apt to handle intensified mechanical application to production on larger units of land.

Other countries such as Italy and Germany have directed their production to exportable machinery, maintaining a specialization on medium sized equipment - as in tractors: 39 HP to 100 HP.

Employment has decreased due to streamlined investments aimed at reducing production costs through labour substitution by technological means of production. Most critical decrease of employment is in countries such as the U.K., where the industry is directing manufacturing to less volume of output and larger size of units produced.

Country: NETHERLANDS

Production of Agricultural Machinery

	1978	1979	1980 *	1981 *
- Ploughs	6,5	5,1	4,6	4,9
- Harrows, cultivators hoeing machines and weeding implements	45,9	39,4	5,9	54,2
- Other equipment for cultivation	10,7	7,4	5,9	5,9
- Fertilizer distributors and liquid manure spreaders	59,3	66,6	62,8	68,1
- Equipment for sowing and planting	1,4	2,0	1,6	1,7
- Spraying machines	28,1	18,5	18,5	21,7
- Haying machines	23,7	22,6	24,5	32,6
- Digger harvesters for potatoes and sugar beets	11,6	9,4	10,3	8,5
- Other machinery for threshing and harvesting; balers for straw and raw food	100,7	114,8	132,1	134,2
- Grading machines	68,4	63,2	63,7	72,8
- Other agricultural machines	123,9	168,3	145,6	145,0
- Parts and special equipment	98,9	111,7	102,0	98,2
- Agricultural trailers	23,4	24,7	22,2	N.A.
Total Agricultural Machinery	602,5	653,7	641,8	647,8
	<i>US\$ Present</i> 106	<i>111</i>	<i>101</i>	<i>102</i>
	<i>Constant</i> 120	<i>120</i>	<i>120</i>	<i>121</i>

* Provisional Figures
Source: CBS

Value in millions of guilders

MARKET OUTLOOK

The agricultural machinery market is presently in a period of structural change. Beginning 1976, a constant decline of demand put the industry in a crisis condition.

1. THE MARKET STRUCTURE

1.1 Concentration of Production and Demand

The agricultural machinery industry was a pillar of the industrial revolution.

The largely unregulated development of international agricultural trade from the 1850's to the second World War period, allowed for a concentration and specialization of agricultural production in today's industrialized geographical regions. As demand for food products experienced a constant increase, due to rapid population growth and wider global scope of trade, so was the yield of land productivity increased through mechanization.

Trade of agricultural machinery is dominant in global terms among industrialized countries, and it is largely the needs of the agricultural sectors in these regions that have determined the direction and volume of the market.

A slow process of diversification of food production in developed and developing regions has been taking place in the post World War II period. Although this process has important consequences on the structure of demand for agricultural machinery, the level of production of agricultural products in the developing countries, through mechanical means that would balance machinery trade has by far not been reached.

1.2 Recent Tendency for Proliferation of Centers of Production

The outlook of the agricultural machinery market remains dependent upon market occurrences in the industrialized countries.

The concentration of production of the machinery and the well advanced capacities for agricultural production in this region pre-determines its global market advantage. This is tied as well to the capital access and investment effectiveness of the agricultural industries in the developed world. However, a process of market adjustments is taking place in the following lines:

Pressures to increase agricultural output in Third World regions, coupled with national regulations concerning local participation in equipment manufacturing, is redressing corporate strategies. This issue will be developed further.

2. THE DEMAND FOR AGRICULTURAL MACHINERY

The variables that determine the market of agricultural products in the industrialized countries are dependent on various factors:

- a) credit access: level of interest rate and government support programmes.
- b) equipment replacement and/or modernization.
- c) supply and demand of agricultural commodities: commodity prices.
- d) farmer's expectations.
- e) farmer's net income.
- f) government support programmes.

This study focuses on the market outlook. The market demand that stems from increase agricultural output in the Third World will be studied further in this report.

3. MARKET OUTLOOK IN SOME EUROPEAN COUNTRIES

3.1 The United Kingdom

The demand for agricultural machinery in the short term will depend mainly on immediate investment. If investment is a function of net farm incomes, immediate demand will see a rise that would reflect an increase in earnings of 33% in real terms in 1982.

The correlation between farm incomes and investment varies in the longer term, but a definite relation is evident in short term movements:

In constant 1975 prices	1977/6	1978/7	1979/8	1980/9	1981/0
% change in farm incomes in real terms	-15	- 9	-19	-24	+10
% change in gross fixed capital formations in plant + machinery in following year	1978/7	1979/8	1980/9	1981/0	1982/1
	- 3	- 3	-28	-24	+19

Performance of the market is related to other cash-flow indicators, incorporating other money flows such as grants and changes in credit availability. If these indicators are included, cash-flow generated from farm activity has only risen by approximately 1.5%. Studies done on the relationship between cash-flows and investment have, however, reflected a weaker relationship when concerning year to year movements.

The machinery demand is well below levels of the 1970's, which averaged approximately 32,000, having a peak of 38,000 units. The 1983 projection of tractor units is expected to be between 26 to 27,000 units, pointing to an increase of about 26% from the 21,000 level of 1981.

The volume output of agricultural production is expected to be restrained in 1983 and 1984. The expected gap between price rises and the increase in input costs will thus be filled by an increase in productivity. If this expectation comes through, an increase in machinery demand may be expected.

The medium-term outlook is dependent on a sustained improvement of the agricultural commodities market. The first quarter of 1983 has seen a rise in tractor registrations of 15% compared to the same period in 1982. The rise in purchasing appears to be influenced by a continued expectation of falling prices of agricultural machinery. The recession period of 1976 to 1981 has encouraged competitive discounting to which the farmers have got accustomed. A maintained level of demand will be a reflection of farmers' expectations, prices and interest rates. The present low level of commodity prices is showing improvement. Presently manufacturers are auctioning machinery to deploy stocks and selling at minimal margins. Large scale investment for plant modernization will take effect as credit interest rates moderate.

3.2 The Netherlands

The Netherlands is a net importer of agricultural machinery, especially concerning tractors. The size of internal products, which consists mainly of producers of attachment parts is small in proportion to internal demand: 90 firms employing 5,300 people.

The market is presently characterised by its demand for replacement of machinery. Two main factors influence the demand variable:

- a) expansion of farm sizes by reduction of units, through a process of mergers.
- b) replacement of older models by new machinery.

The expansion of farm sizes has been induced by market pressures to lower costs, as a result of increasing labour costs. The effect of this trend has been that the mechanization level is rising, calling for machinery of higher horse power. Also, given the qualitative aspect searched by farm workers, security and comfort are factors influencing replacement.

The trend of an increasing demand in a replacement market in the Netherlands is expected to maintain itself throughout the medium term. Two reasons point to this expectation:

- a) the demand is highly specialized and capital intensive.
- b) the nature of the demand is pressuring for structural changes in the commercial distribution of machinery in the internal market.

The agricultural sector experienced a slow-down in investment through the recession period of 1976-81. This slowing down was mainly due to the inhibiting nature of high interest rates on credit. Assuming the levels of interests during the medium term outlook remain stable at present rates or decline, plant and machinery modernisation will be sustained at an approximate level of 2.5% per annum.

Outlook for sales of agricultural machinery:

	1981	1985
- Soil work machinery	40,000	44,000
- Seeders/planter	4,000	5,000
- Divers threshing	11,500	12,500
- Rakes and tedders	11,000	11,500
- Transportation	5,000	5,500
- Silage	3,500	4,000
- Milking	13,000	14,000
- Tractors	20,000	21,000

Structural changes in the internal market have occurred as aggressive competition resulted from the rigidity of the recession. About 65 firms import the various agricultural machines and parts.

These firms have a network of approximately 1,500 dealers across the country. These dealers are generally small enterprises that have begun leasing their equipment and providing financial assistance to support their clients. This system has proven effective in the Netherlands, giving a boost to the replacement process.

3.3 France

The demand outlook for France faces several difficulties in the short and medium terms. These factors can be summarized as follows:

- income stagnation since 1973 and important debt burden.
- the development of collective utilisation of equipment.
- deterioration of currency exchange rates in a market that has become gradually more dependent on imports.

On the other hand, several positive factors can be expected to help an increase of demand for machinery.

- rise of labour costs that is pressuring for further labour substitution.
- decreasing number of farm units at approximately 3% per annum during the past 25 years, while an increase in total level of arable land has taken place.

- the rise of competitiveness of food production in France vis-a-vis the international markets, more boosted now due to favourable exchange rates for export.
- the immediate need to replace the part^l of machinery, especially tractors, which have become grossly outdated.

If the competitiveness of specialized agro-food production in foreign markets provides an improvement of farm cash-flows, a trend for an increase in investment may be expected. However, fiscal conditions in the form of lower interest rates for credit must accompany income increases to fulfill the necessary financial atmosphere for structural changes in agricultural production. As deflationary programmes seem to be improving potential market competition and forecasts for more comfortable debt servicing schemes are at sight, a machinery replacement and upgrading market may be taking place.

Another obstacle in the short term is the lack of prospect for immediate investments in machinery due to lack of price incentives. The price structure of agricultural machinery in France has not been favoured by per unit price decline through discount sales. This is mainly due to the propensity of the French market to import and the deterioration of exchange rates with regards to imports.

Y	West Germany	France	Italy		Great Britain			
	Exp/ D prod.	Imp/ D cons.	Exp/ D prod.	Imp/ D cons.	Exp/ D prod.	Imp/ D prod.	D cons.	
77	47,6%	19,4%	31,5%	40,7%	38,5%	16,8%	63,6%	35,2%
78	45,3%	20,8%	28,1%	41,0%	38,7%	16,5%	67,7%	43,2%
79	46,4%	20,6%	27,8%	40,2%	38,4%	14,7%	63,0%	38,2%
80	52,9%	23,5%	27,3%	41,0%	36,8%	16,8%	68,4%	39,1%

An important factor promoting the need for a machinery replacement market to take-off is the volume of output that the agro-food sectors have to increase to improve their cash-flow. The market demand for these specialized products is improving, and for France the forecast is positive given its market advantages in exports resulting from exchange rate developments. These specialized agro-industries are expanding their land holding, now they need modern machinery with specialized production capacities.

Evolution of Farm Sizes by Land Coverage
(X 1000 of Units)

Land coverage	1981 Total number	% in production
Less than 1 Hect.	120	9.5
1 to 1.99 Hect.	88	7.0
2 to 4.99 Hect.	149	11.8
5 to 9.99 Hect.	167	13.2
10 to 19.99 Hect.	243	19.2
20 to 49.99 Hect.	347	27.5
50 to 99.99 Hect.	114	9.0
100 \geq	35	28
	<hr/> 1 263	<hr/> 100

Finally, another factor that may help an increase of the demand variable is the labour substitution process that agro-food industries are apt implement. This industry can be heavily mechanized and automatized. The French agricultural sector will be faced with no option than to pursue such policies. Two reasons:

- a) investment capacity will be dampened by debt servicing, thus forcing the industry to cut in labour costs to afford renewed investment in machinery.
- b) machinery pricing will not be favourable in the short term, thus the price of investment in the short term will be relatively high.

To afford the capital intensive changes the agricultural market structure needs, cash-flows will have to improve at least by 30% in real terms to afford a 3% rise in investments.

The industry, facing heavy financial commitments already, will have to directly link their investment outlays with per unit input cuts. Given the powerful labour resistance that can be expected in the social context of France, labour cutting policies are hard to implement.

3.4 Germany

The demand for new agricultural machinery in Germany has slightly increased in 1982 from its 1981 level. This improvement is limited to replacement of machinery and is restrained from larger increases by the growth of the second hand machinery sales.

The market split is structured as follows:

a) centralized market:

Manufacturing of heavy equipment, such as tractors, is concentrated among 12% of the agricultural machinery industries, controlling 62.2% of total market.

b) decentralized market:

Manufacturing of small agricultural equipment, composed of small and medium sized enterprises, supplying a highly competitive and restrained market.

The tractor registration figures for 1982 increased by a slight 0.7% from the preceding year. This small increase reflects the direction of the market of new tractors towards the modernization of the existing parc. The largest share of the total demand for tractors is being absorbed by the second hand sales. This outlet comprises former rental equipment that dealers placed in the market through leasing arrangements, as defensive measures against the market slump during the recession period. The ratio of used/new tractors being sold in the market is:

	New models	Second hand
1979	100	210
1980	100	224

Thus, in the short term, the demand for new equipment will rise at small but steady increases. As the stock of used equipment is absorbed and depreciates, new equipment sales will pick-up a larger share of the market demand.

In the medium term, if credit is facilitated by steady or lower interest rates, the agricultural sector may increase its replacement demand market. The tractor industry is experiencing an earlier recovery than the rest of the agricultural machinery sector. This is true for both internal demand and exports. The export orientation of the German market provides a stable and increasing assurance for the industry. For tractors, the first quarter of 1982 represented a boom market. the increase was leveled at the last quarter of the year. The year's increase in export was of 10.2%, reflecting a record. See diagrams next page.

3.5 Sweden

The total figures for 1982 show an increase in value of over 30%. Inflation taken into account, it translates to an increase in volume of approximately 20%. Tractor registrations were up 21% and sales of combines 24%. The main reason being a very good harvest.

The relation between imported and Swedish made machinery has been approximately 60% to 40% during the latest years, but we now have to anticipate an increase in the market share of imported machinery to approximately 75% since Swedish agricultural tractor production is sharply reduced during 1983. Sweden should therefore be considered a very interesting market for many importing companies. The problem possibly being, however, that it is considered a low price market - especially unprofitable after the latest devaluation.

Current Production and Employment Data for Sweden

	1979	1980	1981	1982
Wageearners	5,219	4,444	4,231	4,000
Salaried employees	2,703	2,359	2,308	2,200
Sales value (MSEK)	2,169	1,284	2,322	2,400

MARKET OUTLOOK - SUMMARY TABLE

COUNTRY	1983	Short term	Medium term	Comments
UNITED KINGDOM	<ul style="list-style-type: none"> - Tractor registration for the first 3 months: +15% - Combine harvesters: +10% in units - Other machinery: no clear expectations - Tractors: 26-27 000 units (26 118 in 1982) 	<ul style="list-style-type: none"> - Overall equipt: increase of 2-4% 		<ul style="list-style-type: none"> - Good competitiveness in foreign market due to weakness of pound and low rate of domestic inflation
FRANCE	<ul style="list-style-type: none"> - Tractor sales for the first 2 months: +22% - Combine harvesters: +140% 	<ul style="list-style-type: none"> - Domestic market: +1% - Exports: 1-2% 		<ul style="list-style-type: none"> - Total agricultural industry during the last 3 years: +1% - Domestic market: equipment replacement
FINLAND	<ul style="list-style-type: none"> - Orders: slightly expanding 	<ul style="list-style-type: none"> - Steady market 	<ul style="list-style-type: none"> - Sinking market 	<ul style="list-style-type: none"> - Exports to western countries expanding - Exports to developing countries: small due to big distance between producers and market
DENMARK	<ul style="list-style-type: none"> - Demand for tractors: increases 	<ul style="list-style-type: none"> - 50% of 1979 sales 	<ul style="list-style-type: none"> - 50% of 1979 sales 	<ul style="list-style-type: none"> - Record level in 1979 - 55% decrease in 1980 - Expected level of stability until 1987: 50% of 1979 sales - Tractor demand: <ul style="list-style-type: none"> < 50 HP: decrease 50-70 HP: stagnant > 70 HP: increase - natural level: 40% of 1979

MARKET OUTLOOK - SUMMARY TABLE

COUNTRY	1983	Short term	Medium term	Comments
NETHERLANDS		<ul style="list-style-type: none"> - Soil preparation and cultivation machine: +10% year - Seeding + planting: +20% - harvesting machines: +8% - Transport equipt: +10% - Farm dairy equipt: +8% - Tractors: +5% 		
SWITZER- LAND	- Stagnation			
AUSTRIA	<ul style="list-style-type: none"> - Increase of 2-4% in nominal terms - Decrease of 0-2% in real terms 			
SWEDEN	- No change, compared to 1982			- Bottom reached in 1980-1981

PRESENT SITUATION AS RELATED TO DEVELOPING COUNTRIES

1. VARIATION OF IMPORTS OF AGRICULTURAL MACHINERY IN SOME DEVELOPING COUNTRIES

Data about imports in developing countries is not available for the years after 1980. However, nine developing countries have already published statistics about their trade of agricultural machinery in 1981. This sample of countries representative since it includes countries from 4 continents with different economic and financial conditions.

Table 12 shows that from 1980 to 1981, a decrease of 1% in nominal value was experienced. This decrease represents a deterioration of the market by 10% in real terms, after inflation and currency devaluations are taken into account.

The 1979 to 1980 figures present an increase of the market by about 10% in nominal terms. These figures, however, if interpreted in real terms, show that the market situation was one of stagnation at that period.

2. MARKET CONDITIONS OF DEVELOPING COUNTRIES

Tractors being the agricultural machinery unit that represents approximately 53% of the total agricultural machinery trade, is a reliable indicator for understanding the market conditions.

Table 13 presents the imports of tractors in units by the African countries from 1981 to 1982. From these figures we can observe that the variations of imports from country to country do not present an economic cycle phenomenon. The market is imperfect. The reasons for such lack of homogeneity in the market is because the demand variable is not dependent on market conditions of supply and demand, but on policy orientations. These policy orientations are not directly linked to factors pertaining to the agricultural machinery market.

Examples of non-market variations in imports are for example:

	Imports	
	1981	1982
Egypt	1,046	48
Zimbabwe	1,052	685

Another imperfection in the market is the concentration of total imports of African countries among a handful of them.

(In this section, data on Africa was the only available one to represent the developing countries' imports).

Table 12

AGRICULTURAL MACHINERY IMPORTS OF SOME DEVELOPING COUNTRIES IN THOUSAND US DOLLARS

	Tractors			Harvesters			Soil prep. machines			Farm dairy equipt.			Others		
	1979	1980	1981	1979	1980	1981	1979	1980	1981	1979	1980	1981	1979	1980	1981
BANGLADESH	111	1 727	1 000	40	563	164	106	369	830	198	138	260	653	590	117
BRAZIL	28 736	34 927	23 769	3 748	5 005	3 209	1 008	886	722	3 392	1 140	1 262	2 509	1 366	979
BURUNDI	478	214	308	-	-	-	-	-	-	-	-	-	-	-	-
FR. POLYNESIA	526	191	845	380	302	402	134	96	194	7	20	13	92	275	74
GABON	5 470	6 500	6 811	577	590	476	131	135	128	-	-	-	55	80	14
INDONESIA	27 111	28 903	35 003	2 573	1 661	1 458	1 721	2 328	2 274	442	252	1 563	1 147	2 893	4 590
MALTA	126	399	147	12	27	81	1 132	1 170	530	18	34	40	237	253	454
PANAMA	4 345	4 574	6 570	2 678	2 004	4 716	651	918	1 054	91	66	46	756	1 021	537
OMAN	7 400	7 500	7 577	830	850	857	2 700	2800	2986	18	20	23	250	270	285
	74 306	84 935	81 830	10 838	11 002	11 363	7 583	8 702	8 718	4 166	1 670	3 207	5 699	6 748	7 058

Source: FAO statistics

Table 13

AFRICAN IMPORTS OF TRACTORS

COUNTRY	1981	1982
ALGERIA	1 707	4 170
ANGOLA	37	44
BENIN	57	38
BOTSWANA	0	3
BURUNDI	4	10
CAMEROON	94	62
COMORES	3	0
CONGO	57	109
DJIBOUTI	7	2
EGYPT	1 046	48
EQUATORIAL GUINEA	0	50
ETHIOPIA	104	32
GABON	39	49
GAMBIA	3	1
GUINEA BISSAO	27	2
GUINEA	6	9
IVORY COAST	131	76
KENYA	910	617
LIBERIA	13	1
LYBIA	4 640	3 751
MALAGASY	33	65
MALAWI	30	205
MALI	52	101
MAURITANIA	4	3
MAURITIUS	91	34
MAROCCO	1 260	4 112
MOZAMBIC	90	114
NIGER	42	31
NIGERIA	5 454	1 640
REUNION	53	127
RWANDA	19	1
SENEGAL	60	145
SOMALIA	10	31
SOUTH AFRICA	24 469	9 683
SUDAN	1 377	1 728
TANZANIA	127	187
TCHAD	3	3
TOGO	29	224
TUNISIA	2 523	3 456
UGANDA	113	230
UPPER VOLTA	14	7
ZAIRE	161	144
ZAMBIA	249	224
ZIMBABWE	1 052	685
OTHERS	14	6
	<hr/> 46 214	<hr/> 32 060

Source: F.A.O. statistics

3. THE IMPACT OF DEVELOPING COUNTRIES DEMAND ON AGRICULTURAL MACHINERY
INDUSTRY IN EUROPE

Given the lack of information on the whole range of agricultural machinery traded in the region, we will present figures on the tractor component of such market. As stated above, the tractor trade represents an approximate 53% of the whole machinery market.

The size of the tractor market can be derived by the addition of developing countries production and the difference between imports and exports. The latter represents the apparent consumption of the countries in the region.

Table 14 presents data of manufacturer output by firms in the region (1980). F.A.O. statistics for the same year present the import/export figures for all the developing world.

In 1980,	total production:	173,000 units
	external demand:	143,000 units

The total production in the developing countries represents more than 50% of total consumption. Of the total imports, approximately 30% is supplied by Western European manufacturers.

Table 15 presents the percentage of regional production with regard to the total world production of manufacturers active in the region. The percentage of total output of these manufacturers is about 25% in the developing region. The major manufacturers have proliferated their production to supply the region's needs through local assembling of tractors.

The size of the demand of the developing countries for agricultural machinery is approximately 10% of the European production. This amount does not represent a margin large enough to influence the production in the Western European market.

For each 10% variation in the imports of the developing regions, the Western European markets reflect a 1% change in production.

Table 14

NUMBER OF TRACTORS MANUFACTURED IN DEVELOPING COUNTRIES IN 1980

	INDE	BRESIL	MEXIQUE	TURQUIE	PAKISTAN	ARGENTINE	ALGERIE	IRAN	SYRIE	THAILAND
MASSEY FERGUSON	7 800	18 800	5 600	2 800	5 500	1 250	-	3 000	-	600
INTERN. HARVESTIER	11 600	-	2 700	1 200	-	-	-	-	-	-
FORD	3 500	13 500	5 600	900	1 000	-	-	-	-	600
J. DEERE	-	-	2 000	-	-	1 000	-	-	-	-
FIAT	-	-	-	4 200	-	400	-	-	-	-
DEUTZ	1 000	-	-	-	-	1 200	3 800	-	-	-
D. BROWN/CASE	-	500	-	-	-	-	-	-	-	-
VALMET	-	14 300	-	-	-	-	-	-	-	-
EICHER	10 600	-	-	-	-	-	-	-	-	-
C.B.I	-	7 150	-	-	-	-	-	-	-	-
EBRO	-	-	-	-	-	-	-	-	1 700	-
LEYLAND	-	-	-	1 650	-	-	-	-	-	-
OTHERS	32 700	4 650	-	-	-	-	-	-	-	-
TOTAL	67 200	58 900	15 900	10 750	6 500	3 850	3 800	3 000	1 700	1 200

Source: David Browncase

Table 15

PERCENTAGE OF DEVELOPING COUNTRIES PRODUCTION OF WORLD OUTPUT

UNITS

COMPANY	WORLD PRODUCTION	PRODUCTION IN DEVELOPING COUNTRIES	WORLD PRODUCTION	PRODUCTION IN DEVELOPING COUNTRIES
MASSEY FERGUSON	110 650	43 350	100	40,99
INTERNATIONAL HARVESTER	81 350	15 500	100	19,06
FORD	78 900	25 100	100	31,81
J. DEERE	77 200	3 000	100	3,89
FIAT	52 800	4 600	100	8,71
DEUTZ	27 300	6 000	100	21,98
D. BROWN/CASE	27 200	500	100	1,84
VALMET	17 500	14 300	100	81,71
EICHER	12 150	10 600	100	87,2
C.B.I.	7 150	7 150	100	100
EBRO	6 600	1 700	100	25,76
LEYLAND	5 050	1 650	100	32,67
OTHERS	58 400	37 350	100	63,95
TOTAL	662 000	172 800	100	

Source: David Browncase

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