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FOOD BALANCES FOR 8 EAST EUROPEAN COUNTRIES, 1959-61

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This is the fifth regional food balance bulletin covering 1959-61 published by ERS. These reports provide data needed for establishing and implementing U.S. policies. This bulletin represents an effort to update and improve balances previously published, except for the USSR. The previous balances were published separately in the following publications: Bulgaria, FAS-M-39, July 1958; Poland, FAS-M-54, April 1959; Hungary, FAS-M-79, March 1960; Yugoslavia, FAS-M-86, June 1960; East Germany, ERS-Foreign 5, August 1961; Czechoslovakia, ERS-Foreign 38, September 1962.

Overall project direction and coordination of the five bulletins was by Charles A. Gibbons, Statistician, Foreign Regional Analysis Division.

EXPLANATION OF SYMBOLS IN TABLES

Notations used in the food balance tables are as follows:

- An average for the period of years indicated.
- ... None, negligible, not available, or not applicable.
- * USDA estimate. May be an adjustment of official data or an estimate made without benefit of official data.

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May 1965

UNITED STATES DEPARTMENT OF AGRICULTURE

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For P.M. Release, June 1

USDA Reports on Diet Quality of Countries in Eastern Europe:

The people of Eastern Europe are among the one-third of the world's population with sufficient food, but the quality of their diet is low, according to a report published today by the U.S. Department of Agriculture.

The statistical report on food consumption and diet in Eastern Europe, by USDA's Economic Research Service, is based on available official statistics of the Soviet Union and the seven other East European countries, other foreign source materials, reports of U.S. agricultural attaches and foreign service, and research of USDA foreign specialists.

East European countries comprise 10 percent of the world's population. In 1959-61 they consumed 14 percent of the estimated world calorie intake. Less than 10 percent of the total food supply of the eight countries was imported. And per capita food imports were much less than those of West European countries. The imported portion ranged from 5 percent in the USSR to 30 percent in Czechoslovakia and East Germany in 1959-61. Since the disastrous harvest of 1963, however, the Soviet Union has become a large importer of wheat.

Quantity and quality of East European diets were at a post-war high during 1959-61, although their diets consist more of grains and less of meat, dairy products, fruits and vegetables than in Western Europe and North America.

Single copies of "Food Balances for 8 East European Countries, 1959-61," ERS-Foreign 124, are available from the Division of Information, Office of Management Services, U.S. Department of Agriculture, Washington, D. C. 20250.

For P.M. Release, June 1

FOOD BALANCES FOR 8 EAST EUROPEAN COUNTRIES, 1959-61

INTRODUCTION

Eastern Europe's population, 10 percent of the world's population, accounted for 15 percent of the estimated world caloric intake during 1959-61. This reflects the fact that East Europeans are, on the average, among the one-third of the world's population considered to have adequate diets. Among the adequately fed, however, East European consumers ranked low. On the average, caloric intake was about the same in Eastern and Western Europe. But, calories from grain and potatoes averaged 20 percent higher in Eastern Europe, while animal protein consumption averaged one-third less than in Western Europe.

The relative importance of food imports to consumption ranged from less than 5 percent in the USSR and Rumania to about 30 percent in Czechoslovakia and East Germany. On the average, 10 percent of the food consumed was imported. At least half of this was intraregional shipments. The Soviet Union's major net food imports during this period were sugar and rice. Four countries--Czechoslovakia, East Germany, Poland, and Yugoslavia--were significantly dependent on wheat and vegetable oil imports.

Both diet quantity and quality in these countries were probably at a postwar high during 1959-61. Since then diet quality has decreased in a number of countries. During this time, per capita agricultural output tended to stagnate. Despite higher farm prices and more capital inputs, communist agricultural policy continued to depress production.

The principal obstacle in constructing these food balances was data inadequacy. Agricultural production, trade, and utilization data published by these countries often have considerable gaps, are definitionally obscure or incomparable, and are conflicting. This applies especially to Soviet, Bulgarian, and Rumanian data. It was necessary in many cases to adjust or supplement published statistics, using qualitative information from the country in question, or to adapt relationships prevailing in neighboring countries. Data so treated are denoted by asterisks.

All the balances contain an undetermined margin of error. The magnitude of the error probably is greatest in the Soviet, Bulgarian, and Rumanian balances. Daily caloric intake estimates published in Czechoslovakian, Polish, and Yugoslavian sources provided a benchmark for comparative purposes. USDA estimates of average daily caloric intake exceeded the Polish estimates by 4 percent; USDA estimates were 99 and 95 percent of Czechoslovakian and Yugoslavian data, respectively. The average daily caloric estimates were rounded to the nearest 10 calories.

Since these balances were used in developing The World Food Budget, 1970 (Foreign Agr. Econ. Rpt. 19, Econ. Res. Serv., U.S. Dept. Agr., Oct. 1964), a number of revisions were necessitated by new or more complete data. Important problems regarding the balances are discussed in the Appendix.

Table 1.--Food consumption per person per day in 8 East European countries, 1959-61 average

Country	Calories per day								Protein per day				Fats per day	
	Cereal products	Potatoes	Pulses ^{1/}	Sugar and fruit	Other vegetables	Fats and oils	Meat, fish and eggs	Milk and cheese	Total ^{2/}	Animal	Pulse	Other		Total
	Number								Grams					
Czechoslovakia	1,251	198	38	387	85	488	460	186	3,090	32.7	1.3	36.4	70.4	111.8
East Germany	1,009	323	18	317	102	644	488	136	3,040	32.1	.8	32.7	65.6	126.3
Hungary	1,355	188	25	283	84	322	457	182	2,900	31.8	1.4	38.2	71.4	90.0
Poland	1,386	364	16	279	68	309	405	276	3,100	34.2	.8	43.0	78.0	93.1
Weighted average, 4 northern countries:	1,263	297	22	310	82	427	443	211	3,050	33.1	1.0	38.5	72.6	104.4
Bulgaria	1,940	43	59	202	142	269	145	111	2,910	16.2	4.0	61.0	81.2	58.2
Rumania	1,883	138	58	159	85	170	186	157	2,840	21.0	3.7	56.4	81.1	50.7
Yugoslavia	1,786	135	111	164	83	252	170	202	2,900	21.3	5.1	55.4	81.8	63.1
Weighted average, 3 southern countries:	1,853	120	80	169	94	221	172	167	2,880	20.3	4.3	56.8	81.4	57.1
Soviet Union	1,631	265	42	319	58	250	246	187	3,000	29.0	6.4	50.5	85.9	64.5
Weighted average total	1,582	252	43	297	68	284	278	190	2,990	28.7	5.0	48.8	82.5	72.0

^{1/} Includes nuts and cocoa.
^{2/} Rounded to nearest 10 calories.

Table 2.--Bulgaria: Food balance, 1959-61

Average population: 7,867,400

Product	Supply					Utilization *										
	Pro- duction	Im- ports	Ex- ports	Chan- ges in stocks *	Total supply	Nonfood use				Supply for food						
						Seed and waste	Feed	Indus- trial	Total	Total gross	Ex- trac- tion rate	Net				
												Total	Per capita			
1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	Per- cent	1,000 m. tons	Kilo- grams	Calo- ries	Grams pro- tein	Grams fat
Wheat	2,278	101	17	65	2,297	422	143	...	565	1,732	80	1,386	176.2	1,685	47.3	6.3
Rye	86	...	...	...	86	19	23	...	42	44	80	35	4.4	41	1.1	.2
Barley	598	18	...	...	616	84	418	32	534	82	65	53	6.7	61	2.0	.3
Corn	1,478	40	71	...	1,447	118	1,199	16	1,333	114	65	74	9.4	94	2.2	.3
Millet	3	...	...	...	3	1	2	...	3	...	...	...	...	...	...	...
Oats	223	...	...	...	223	40	152	...	192	31	75	23	3.0	32	1.1	.6
Spelt	9	...	...	...	9	2	6	...	8	1	75	...	...	...	...	...
Rice, paddy	33	...	...	...	33	3	...	...	3	30	65	20	2.7	27	.5	.1
Rice, milled .....	...	9	8	...	1	...	...	...	...	1	...	1	...	...	...	...
Total cereals ..													202.4	1,940	54.2	7.8
Sugar, raw value .	192	58	59	28	163	...	...	...	...	163	92	150	19.1	202	...	...
Potatoes	448	...	53	...	395	144	58	16	218	177	...	177	22.5	43	1.0	.1
Pulses	98	...	31	...	67	18	...	...	18	49	...	49	6.2	59	4.0	.4
Other vegetables *	1,723	...	356	...	1,367	310	...	...	310	1,057	...	1,057	134.4	81	5.2	.7
Olives .....	...	3	...	...	3	...	...	...	...	3	...	3	.4	3	...	.3
Fruit	1,296	4	224	...	1,076	259	...	454	713	363	...	363	46.1	58	.6	.4
Beef and veal	*29	4	...	...	33	...	...	...	...	33	...	33	4.2	18	1.7	1.3
Pork	*78	2	14	...	66	...	...	...	...	66	...	66	8.4	69	2.5	6.2
Mutton and lamb ..	*40	...	...	...	40	...	...	...	...	40	...	40	5.1	17	1.8	1.0
Poultry	*39	...	6	...	33	...	...	...	...	33	...	33	4.2	15	1.4	1.0
Edible offals	*9	...	1	...	8	...	...	...	...	8	...	8	1.0	4	.4	.2
Other meat	*5	...	1	...	4	...	...	...	...	4	...	4	.5	2	.2	.1
Total meat													23.4	125	8.0	9.8
Fish	6	6	...	...	12	...	...	...	...	12	...	12	1.5	3	.4	.1
Eggs	60	...	20	...	40	6	...	...	6	34	...	34	4.3	17	1.3	1.2
Vegetable oils ...	97	2	7	2	90	...	...	29	29	61	...	61	7.7	187	...	21.1
Slaughter fats ...	*25	...	8	...	17	...	...	...	...	17	...	17	2.2	47	.2	5.0
Butter	16	...	2	...	14	...	...	...	...	14	...	14	1.8	35	...	4.0
Total fats													1/11.0	269	.2	30.1
Whole milk	1,110	...	...	...	1,110	...	233	608	841	269	...	269	34.2	61	3.3	3.3
Cheese	*57	...	9	...	48	...	...	...	...	48	...	48	6.1	50	3.0	4.0
Total milk and cheese													111	6.3	7.3	
Total consumption.													2,910	81.2	58.2	

1/ In fat content.

Table 3.--Czechoslovakia: Food balance 1959-61

Average population: 13,653,00

Product	Supply					Utilization										
	Pro-duction	Im-ports	Ex-ports	Chan-ges in stocks	Total supply	Nonfood use*				Supply for food						
						Seed and waste	Feed	Indus-trial	Total	Total gross	Ex-traction rate*	Total	Net			
													Per capita			
1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	Per-cent	1,000 m.tons	Kilo-grams	Calo-ries	Grams pro-tein	Grams fat
Wheat	1,606	1,251	42	...	2,815	217	1,064	...	1,281	1,534	75	1,151	*84.3	843	19.9	2.5
Rye	952	177	...	...	1,129	140	358	...	498	631	75	473	*34.6	331	6.6	1.1
Barley	1,598	63	1/217	...	1,444	220	694	492	1,406	38	60	23	*1.7	16	.5	.1
Corn	512	162	2	...	672	39	614	...	653	19	80	15	*1.1	11	.3	...
Mixed grains	969	2/473	...	...	1,442	147	1,268	...	1,415	27	50	14	*1.0	10	.4	.2
Rice, milled .....	...	119	19	...	100	...	...	44	44	56	...	56	4.1	40	.8	.1
Total cereals ..													126.8	1,251	28.5	4.0
Sugar, raw value .	957	10	477	-52	542	...	...	...	...	542	92	499	36.5	387	...	...
Potatoes	5,586	106	15	...	5,677	1,777	1,908	583	4,268	1,409	...	1,409	103.2	198	4.8	.3
Pulses	21	11	...	...	32	3	...	...	3	29	...	29	*2.1	20	1.3	.1
Other vegetables .	780	100	...	...	880	156	...	...	156	724	...	724	*53.0	32	2.0	.3
Cocoa beans .....	...	13	...	...	13	...	...	...	...	13	80	10	.7	7	.2	.5
Nuts	1	8	...	...	9	...	...	...	...	9	...	9	.7	11	.3	1.1
Fruit	636	143	7	...	772	76	...	120	196	576	...	576	42.2	53	.6	.3
Beef and veal	*139	40	...	...	179	...	...	...	...	179	...	179	*13.1	65	5.5	3.9
Pork	*373	59	3	...	429	...	...	...	...	429	...	429	31.4	323	8.4	31.8
Poultry	*57	6	1	...	62	...	...	...	...	62	...	62	*4.5	16	1.5	1.1
Edible offals	*53	...	1	...	52	...	...	...	...	52	...	52	*3.8	15	1.7	.8
Other meat	*4	...	...	...	4	...	...	...	...	4	...	4	*.3	1	.1	...
Total meat													*53.1	420	17.2	37.6
Fish	9	53	...	...	62	...	...	...	...	62	...	62	4.5	8	1.1	.3
Eggs	124	4	7	...	121	12	...	...	12	109	...	109	*8.0	32	2.4	2.3
Vegetable oils ...	107	40	4	...	143	...	...	32	32	111	...	111	8.1	196	...	22.2
Lard	*82	16	...	...	98	...	...	11	11	87	...	87	*6.4	136	.7	14.7
Tallow	*7	5	...	...	12	...	...	6	6	6	...	6	*.4	9	...	.9
Butter	*87	15	...	...	102	...	...	...	...	102	...	102	*7.5	147	1.2	16.6
Total fats													3/19.9	488	1.9	54.4
Milk	3,845	...	...	...	3,845	...	440	2,176	2,616	1,229	...	1,229	*90.0	161	8.6	8.6
Cheese	*44	1	2	...	43	...	...	...	...	43	...	43	*3.1	25	1.5	2.0
Total milk and cheese														186	10.1	10.6
Total consumption.														3,090	70.4	111.8

1/ Includes malt in barley equivalent.

2/ Mostly unspecified feed grains.

3/ In fat content.

Table 4.--East Germany: Food balance 1959-61

Average population: 17,237,000

Product	Supply					Utilization										
	Pro- duction	Im- ports	Ex- ports	Chan- ges in stocks *	Total supply	Nonfood use*				Supply for food						
						Seed and waste	Feed	Indus- trial	Total	Total gross	Ex- trac- tion rate	Total	Net			
													Per capita			
1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	Per- cent	1,000 m. tons	Per year	Per day		
													Kilo- grams	Calo- ries	Grams pro- tein	Grams fat
Wheat	1,288	1,368	*200	...	2,456	166	1,179	40	1,385	1,071	75	803	46.6	466	11.0	1.4
Rye	1,921	229	*60	...	2,090	290	584	41	915	1,175	75	881	51.1	489	9.8	1.7
Barley	1,085	109	*10	...	1,184	139	659	357	1,155	29	65	19	1.1	10	.3	.1
Oats	943	82	...	...	1,025	123	902	...	1,025	...	...	...	...	...	...	...
Other grains	486	159	...	...	645	74	571	...	645	...	...	...	...	...	...	...
Rice, milled .....	...	96	...	...	96	...	...	21	21	75	...	75	4.4	44	.8	.1
Total cereals ..													97.1	1,099	21.9	3.3
Sugar, raw value .	777	58	302	-27	560	...	...	...	...	560	92	515	29.9	317	...	...
Potatoes	11,895	63	63	...	11,895	3,284	5,081	633	8,998	2,897	...	2,897	168.2	323	7.8	.5
Pulses	30	11	...	...	41	4	14	...	18	23	...	23	1.3	12	.8	.1
Other vegetables .	1,102	129	...	...	1,231	180	48	...	228	1,003	...	1,003	58.2	35	2.2	.3
Cocoa beans .....	...	13	...	...	13	...	...	...	...	13	80	10	.6	6	.1	.4
Fruit	848	237	...	...	1,085	170	...	...	170	915	...	915	53.1	67	.7	.4
Beef and veal	*190	41	*6	...	225	...	...	...	...	225	...	225	*13.1	65	5.5	3.9
Pork	*531	42	*25	...	548	...	...	...	...	548	...	548	*31.8	327	8.5	32.2
Poultry	*67	17	*6	...	78	...	...	...	...	78	...	78	*4.5	16	1.5	1.1
Edible offals	*47	5	*4	...	48	...	...	...	...	48	...	48	*2.8	11	1.2	.6
Other meat	*32	30	*8	...	54	...	...	...	...	54	...	54	*3.1	10	1.4	.4
Total meat													55.3	429	18.1	38.2
Fish	117	110	10	...	217	...	...	...	...	217	...	217	12.6	21	3.0	.9
Eggs	170	4	...	...	174	9	...	...	9	165	...	165	9.6	38	2.9	2.7
Vegetable oils ...	193	106	...	...	299	...	...	124	124	175	...	175	10.2	247	...	27.9
Slaughter fats ...	150	6	...	...	156	...	...	42	42	114	...	114	6.6	140	.7	15.2
Butter	171	55	...	...	226	...	...	...	...	226	...	226	13.1	257	.2	29.1
Total fats													1/26.4	644	.9	72.2
Whole milk	6,004	...	...	...	6,004	...	693	4,285	4,978	1,026	...	1,026	*59.5	106	5.4	4.9
Cheese	44	19	...	...	63	...	...	...	...	63	...	63	3.7	30	1.8	2.4
Total milk and cheese														136	7.2	7.3
Total consumption.														3,040	65.6	126.3

1/ In fat content.

Table 5.--Hungary: Food balance, 1959-61

Average population: 9,984,000

Product	Supply					Utilization										
	Pro- duction	Im- ports	Ex- ports	Chan- ges in stocks *	Total supply	Nonfood use *				Supply for food						
						Seed and waste	Feed	Indus- trial	Total	Total gross	Ex- trac- tion rate	Net				
												Total	Per capita			
1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	Per- cent	1,000 m. tons	Kilo- grams	Calo- ries	Grams pro- tein	Grams fat
Wheat	1,871	1/341	1/85	...	2,127	284	350	...	634	1,493	73	1,102	*110.4	1,104	26.0	3.3
Rye	365	6	...	...	371	65	...	...	65	306	73	226	*22.6	216	4.3	.7
Barley	1,021	23	12	...	1,032	129	808	95	1,032	...	...	...	...	...	...	...
Corn	3,259	72	46	...	3,285	218	3,057	10	3,285	...	...	...	...	...	...	...
Oats	200	...	...	...	200	31	169	...	200	...	...	...	...	...	...	...
Rice, paddy	47	...	...	...	47	5	...	...	5	42	65	27	} 3.5	35	.6	.1
Rice, milled .....	...	22	14	...	8	...	...	...	...	8	...	8				
Total cereals ..													136.5	1,355	30.9	4.1
Sugar, raw value .	412	43	136	25	294	...	...	4	4	290	92	267	26.7	283	...	...
Potatoes	2,217	23	58	...	2,182	766	397	39	1,202	980	...	980	98.1	188	4.6	.3
Pulses	78	...	32	4	42	12	7	...	19	23	...	23	*2.3	22	1.4	.1
Other vegetables .	*788	...	122	...	666	158	...	...	158	508	...	508	*50.9	31	2.0	.3
Cocoa beans .....	...	4	...	...	4	...	...	...	...	4	80	3	*.3	3	.1	.2
Fruit	1,441	19	106	...	1,354	207	...	726	933	421	...	421	*42.2	53	.6	.3
Beef and veal	*99	2	9	...	92	3	...	...	3	89	...	89	*9.0	44	3.8	2.7
Pork	*326	16	16	...	326	10	...	...	10	316	...	316	*31.7	326	9.0	32.1
Mutton and lamb ..	*10	...	...	...	10	...	...	...	...	10	...	10	1.0	3	.3	.2
Poultry	99	...	17	...	82	3	...	...	3	79	...	79	7.9	28	2.6	1.9
Edible offals	34	...	...	...	34	1	...	...	1	33	...	33	3.3	13	1.4	.7
Other meat	17	...	...	...	17	1	...	...	1	16	...	16	1.6	5	.7	.2
Total meat													*54.5	419	17.8	37.8
Fish	16	...	...	...	16	...	...	...	...	16	...	16	*1.6	3	.4	.1
Eggs	103	4	8	...	99	10	...	...	...	89	...	89	8.9	35	2.7	.1
Vegetable oils ...	41	4	19	...	26	...	...	12	12	14	...	14	1.4	34	...	3.8
Lard	120	9	11	...	118	...	...	...	...	118	...	118	*11.8	250	1.3	27.1
Tallow	4	7	...	...	11	...	...	6	6	5	...	5	*.5	11	.1	1.2
Butter	*19	...	5	...	14	...	...	...	...	14	...	14	1.4	27	...	3.1
Total fats													*2/12.8	322	1.4	35.2
Whole milk	2,009	...	...	...	2,009	...	370	734	1,104	905	...	905	*90.6	161	8.2	7.4
Cheese	*32	...	6	...	26	...	...	...	...	26	...	26	*2.6	21	1.3	1.7
Total milk and cheese														182	9.5	9.1
Total consumption.														2,900	71.4	90.0

1/ Includes flour in wheat equivalent.

2/ In fat equivalent.

Table 6.--Poland: Food balance, 1959-61

Average population: 29,687,000

Product	Supply					Utilization										
	Pro-duction	Im-ports	Ex-ports	Chan-ges in stocks *	Total supply	Nonfood use*				Supply for food						
						Seed and waste	Feed	Indus-trial	Total	Total gross	Ex-trac-tion rate	Total	Net			
													Per year	Per capita		
1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	1,000 m. tons	Per-cent	1,000 m. tons	Kilo-grams		Calo-ries	Grams pro-tein	Grams fat
Wheat ^{1/}	2,526	1,590	...	50	4,066	404	756	...	1,160	2,906	72	2,092	*70.5	705	16.6	2.1
Rye	8,116	141	...	33	8,224	1,399	4,033	283	5,715	2,509	72	1,806	*60.8	581	11.7	2.0
Barley	1,230	307	^{2/} 90	...	1,447	196	776	334	1,306	141	63	89	*3.0	27	.9	.1
Corn	33	36	...	...	69	7	16	2	25	44	62	28	*.9	9	.2	...
Oats	2,732	...	...	...	2,732	459	2,119	7	2,585	147	52	77	*2.6	27	.9	.5
Buckwheat	106	...	...	...	106	20	...	...	20	86	58	50	*1.7	16	.3	.1
Rice, milled .....	...	87	...	...	87	...	...	25	25	62	...	62	2.1	21	.4	...
Mixed grains	384	53	...	...	437	69	368	...	437	...	...	...	...	...	...	...
Total cereals ..													141.6	1,386	31.0	4.8
Sugar, raw value .	1,311	140	452	149	850	...	...	...	...	850	92	782	*26.3	279	...	...
Potatoes	39,585	...	^{3/} 403	...	39,182	11,197	19,628	1,723	32,548	6,634	85	5,639	189.9	364	8.8	.5
Pulses	52	1	1	...	52	11	...	...	11	41	...	41	1.4	13	.8	.1
Other vegetables .	3,013	20	62	...	2,971	690	...	...	690	2,281	...	2,281	76.8	46	2.9	.4
Cocoa beans .....	...	^{4/} 10	...	...	10	...	...	...	...	10	80	8	.3	3	.1	.2
Fruit	726	65	31	...	760	150	100	...	250	510	...	510	17.2	22	.2	.1
Beef and veal	*258	8	9	...	257	...	...	...	...	257	...	257	*8.7	38	3.6	2.6
Pork	*959	17	119	...	857	...	...	...	...	857	...	857	*28.9	298	7.8	29.3
Mutton and lamb ..	*22	1	1	...	22	...	...	...	...	22	...	22	*.7	5	.2	.4
Horse meat	*21	...	4	...	17	...	...	...	...	17	...	17	*.6	2	.2	...
Poultry	*63	...	17	...	46	...	...	...	...	46	...	46	*1.5	5	.5	.4
Edible offals	*111	...	1	...	110	...	...	...	...	110	...	110	*3.7	14	1.6	.8
Other meat	*19	...	2	...	17	...	...	...	...	17	...	17	*.6	2	.3	.1
Total meat													44.7	364	14.2	33.6
Fish	180	21	6	...	195	...	...	...	...	195	...	195	*6.6	11	1.6	.5
Eggs	309	...	62	...	247	24	...	...	24	223	...	223	7.5	30	2.3	2.1
Vegetable oils ...	100	48	...	8	140	...	...	51	51	89	...	89	3.0	72	...	8.2
Lard	212	1	6	...	207	...	...	16	16	191	...	191	6.4	136	.7	14.8
Tallow	13	31	...	...	44	...	...	31	31	13	...	13	.4	9	...	1.0
Butter	*165	1	26	...	140	...	...	...	...	140	...	140	4.7	92	.1	10.5
Total fats													^{5/} 12.6	309	.8	34.5
Whole milk	12,516	34	1	...	12,549	...	1,755	7,055	8,810	3,739	...	3,739	*125.9	224	12.1	12.1
Cheese	*189	1	1	...	189	...	...	...	...	189	...	189	*6.4	52	3.2	4.2
Total milk and cheese														276	15.3	16.3
Total consumption.														3,100	78.0	93.1

^{1/} Wheat imports include flour in wheat equivalent.^{2/} Includes malt in barley equivalent.^{3/} Includes potato flour in potato equivalent.^{4/} Includes cocoa powder in cocoa beans equivalent.^{5/} In fat equivalent.

Table 7.--Rumania: Food balance 1959-61

Average population: 18,403,000

Product	Supply					Utilization										
	Pro-duction	Im-ports	Ex-ports	Chan-ges in stocks *	Total supply	Nonfood use				Supply for food*						
						Seed and waste*	Feed	Indus-trial*	Total*	Total gross	Ex-traction rate	Total	Net			
													Per capita			
m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	m. tons	Per-cent	m. tons	Kilo-grams	Calo-ries	Grams pro-tein	Grams fat
Wheat	3,813	*36	*14	50	3,785	795	*150	...	945	2,840	80	2,272	123.5	1,181	33.2	4.4
Rye	112	...	*23	...	89	26	...	...	26	63	80	50	2.7	25	.7	.1
Barley	441	...	...	...	441	74	321	46	441	...	...	...	...	...	...	...
Corn	5,650	*1	*683	250	4,718	572	2,704	18	3,294	1,424	85	1,210	65.8	654	15.1	2.2
Oats	291	...	...	...	291	62	229	...	291	...	...	...	...	...	...	...
Rice, paddy	45	...	...	...	45	7	...	...	7	38	65	25	2.3	23	.4	...
Rice, milled .....	...	17	...	...	17	...	...	...	...	17	...	17	...	...	...	...
Total cereals ..													194.3	1,883	49.4	6.7
Sugar, raw value .	382	21	81	22	300	...	...	...	...	300	92	276	15.0	159	...	...
Potatoes	2,927	...	43	...	2,884	955	*580	25	1,560	1,324	...	1,324	71.9	138	3.3	.2
Pulses	218	3	3	...	218	33	*72	...	105	113	...	113	6.1	58	3.7	.4
Other vegetables .	2,013	...	36	...	1,977	402	...	...	402	1,575	...	1,575	85.6	52	3.3	.5
Fruit	1,859	14	136	...	1,737	278	...	985	1,263	474	...	474	25.8	33	.4	.2
Beef and veal	*150	...	3	...	147	...	...	...	...	147	...	147	8.0	35	3.3	2.4
Pork	*231	...	20	...	211	...	...	...	...	211	...	211	11.5	94	3.4	8.5
Mutton and lamb ..	*48	...	...	...	48	...	...	...	...	48	...	48	2.6	8	.9	.5
Poultry	*70	...	...	...	70	...	...	...	...	70	...	70	3.8	13	1.2	.9
Edible offals	*48	...	...	...	48	...	...	...	...	48	...	48	2.6	10	1.1	.6
Total meat													28.5	160	9.9	12.9
Fish	21	13	...	...	34	...	...	...	...	34	...	34	1.8	3	.4	.1
Eggs	*119	1	6	...	114	12	...	...	12	102	...	102	5.5	23	1.7	1.6
Vegetable oils ...	107	10	23	...	94	...	...	10	10	84	...	84	4.6	111	...	12.6
Slaughter fats ...	*50	...	10	...	40	...	...	4	4	36	...	36	2.0	43	.2	4.6
Butter	*16	...	1	...	15	...	...	...	...	15	...	15	.8	16	...	1.8
Total fats													1/6.9	170	.2	19.0
Whole milk	2,810	...	...	...	2,810	...	646	944	1,590	1,220	...	1,220	66.3	118	6.0	5.4
Cheese	*104	...	...	...	104	...	...	...	...	104	...	104	5.7	39	2.8	3.7
Total milk and cheese														157	8.8	9.1
Total consumption.														2,840	81.1	50.7

1/ In fat equivalent.

Table 8.--Soviet Union: Food balance, 1959-61

Average population: 214,200,000

Product	Supply					Utilization*										
	Pro- duction	Im- ports	Ex- ports	Chan- ges in stocks *	Total supply	Nonfood use				Supply for food						
						Seed and waste	Feed	Indus- trial	Total	Total gross	Ex- trac- tion rate	Total	Net			
													Per year	Per capita		
1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	Per- cent	1,000 m.tons	Kilo- grams		Calo- ries	Grams pro- tein	Grams fat
Wheat	* 50,084	362	5,647	-3,573	48,372	12,635	1,495	2,112	16,242	32,130	83	26,668	124.5	1,190	33.4	4.4
Rye	*14,563	...	773	-173	13,963	3,233	1,381	967	5,581	8,382	90	7,544	35.2	329	8.7	1.7
Barley	*10,994	7	484	...	10,517	2,507	6,686	900	10,089	428	65	278	1.3	12	.4	.1
Corn	* 8,467	47	228	...	8,286	1,202	6,123	533	7,858	428	65	278	1.3	13	.3	...
Oats	*10,160	...	118	...	10,042	2,830	6,684	100	9,614	428	62	265	1.2	13	.4	.2
Millet	2,473	...	...	...	2,473	209	1,357	50	1,616	857	90	771	3.6	33	1.2	2.2
Buckwheat	942	...	...	...	942	127	337	50	514	428	90	385	1.8	17	.3	.1
Rice, paddy	218	621	...	...	839	28	...	...	28	811	65	527	2.5	24	.5	...
Total cereals ..													171.4	1,631	45.2	6.7
Sugar, raw value .	6,286	1,892	480	692	7,006	...	...	...	...	7,006	92	6,446	30.1	319	...	...
Potatoes	85,082	...	...	...	85,082	33,182	17,840	4,500	55,522	29,560	...	29,560	138.0	265	6.4	.4
Pulses	2,950	47	...	...	2,997	592	1,440	...	2,032	965	...	965	4.5	42	2.7	.3
Other vegetables .	15,858	233	...	...	16,091	3,185	...	...	3,185	12,906	...	12,906	60.3	36	2.3	.3
Grapes	1,946	47	...	...	1,993	292	...	1,147	1,439	554	...	554	2.6	4	.1	...
Other fruit	3,034	525	...	...	3,559	478	...	...	478	3,081	...	3,081	14.4	18	.2	.1
Beef and veal	*2,663	57	101	...	2,619	...	...	...	...	2,619	...	2,619	12.2	53	5.1	3.7
Pork	*2,650	21	6	...	2,665	...	...	...	...	2,665	...	2,665	12.4	102	3.7	9.2
Mutton and lamb ..	*827	...	...	...	827	...	...	...	...	827	...	827	3.9	13	1.4	.8
Poultry	766	3	...	...	769	...	...	...	...	769	...	769	3.6	13	1.2	.9
Edible offals	*835	...	...	...	835	...	...	...	...	835	...	835	3.9	15	1.7	.8
Other meat	*319	...	...	...	319	...	...	...	...	319	...	319	1.5	5	.7	.2
Total meat													37.5	201	13.8	15.6
Fish	3,447	103	72	...	3,478	1,034	...	...	1,034	2,444	...	2,444	11.4	19	2.7	.8
Eggs	1,498	10	...	...	1,508	75	...	...	75	1,433	...	1,433	6.7	26	2.0	1.9
Vegetable oils ...	*1,962	83	105	...	1,940	...	...	800	800	1,140	...	1,140	5.3	128	...	14.5
Slaughter fats ...	*765	4	14	...	755	...	...	374	374	381	...	381	1.8	38	.2	4.1
Marine oils	98	30	20	...	108	...	...	30	30	78	...	78	.4	10	...	1.1
Butter	862	9	58	...	813	...	...	...	...	813	...	813	3.8	74	.1	8.4
Total fats													1/10.3	250	.3	28.1
Whole milk	*52,667	...	21	...	52,646	2,632	7,894	20,440	30,966	21,680	...	21,680	101.2	180	9.7	9.7
Cheese	*200	...	3	...	197	...	...	...	...	197	...	197	.9	7	.5	.6
Total milk and cheese													102.1	187	10.2	10.3
Total consumption.														3,000	85.9	64.5

1/ Fat content.

Table 9.--Yugoslavia: Food balance 1959-61

Average population: 18,402,000

Product	Supply					Utilization										
	Pro- duction	Im- ports	Ex- ports	Chan- ges in stocks*	Total supply	Nonfood use *				Supply for food						
						Seed and waste	Feed	Indus- trial	Total	Total gross	Ex- trac- tion rate*	Total	Net			
													Per year	Per capita		
1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	1,000 m.tons	Per- cent	1,000 m.tons	Kilo- grams	Calo- ries	Grams pro- tein	Grams fat
Wheat	3,623	607	58	167	4,005	663	217	...	880	3,125	80	2,500	*135.8	1,299	36.5	4.8
Flour .....	...	62	...	...	62	...	...	...	...	62	...	62	*3.4	33	.9	.1
Rye	230	...	...	...	230	60	...	...	60	170	80	136	*7.4	69	1.8	.4
Barley	558	1/11	6	...	563	95	391	42	528	35	65	23	1.2	11	.4	.1
Corn	5,793	2	402	...	5,393	509	4,053	71	4,633	760	85	646	35.1	349	8.1	1.2
Meslin and spelt .	40	...	...	...	40	8	27	...	35	5	80	4	.2	2	...	...
Oats	403	...	5	...	398	72	326	...	398	...	...	...	...	...	...	...
Rice, paddy	21	...	...	...	21	3	...	...	3	18	65	18	...	...	...	...
Rice, milled .....	...	31	...	...	31	...	...	...	...	31	...	31	2.7	23	.4	...
Total cereals ..													185.8	1,786	48.1	6.6
Sugar, raw value .	264	106	56	4	310	...	...	...	...	310	92	285	15.5	164	...	...
Potatoes	2,906	18	5	...	2,919	962	651	8	1,621	1,298	...	1,298	70.5	135	3.3	.2
Pulses	220	4	4	20	200	33	...	...	33	167	...	167	9.1	86	5.1	.5
Other vegetables .	1,706	1	18	...	1,689	256	436	...	692	997	...	997	54.2	33	2.1	.3
Nuts ^{2/}	29	4	2	...	31	1	...	...	1	30	3/80	29	1.6	25	.6	2.3
Fruit	2,248	49	88	...	2,209	337	...	1,140	1,477	732	...	732	*39.8	50	.5	.3
Beef and veal	140	...	18	...	122	...	...	...	...	122	...	122	6.6	29	2.8	2.0
Pork	269	2	54	...	217	...	...	...	...	217	...	217	*11.8	97	3.5	8.7
Mutton and lamb ..	55	...	3	...	52	...	...	...	...	52	...	52	2.8	9	1.0	.6
Poultry	67	...	4	...	63	...	...	...	...	63	...	63	3.4	12	1.1	.8
Edible offals	41	...	1	...	40	...	...	...	...	40	...	39	2.2	8	.9	.5
Horse and game ...	8	...	1	...	7	...	...	...	...	7	...	5	.4	1	.1	...
Total meat													27.1	156	9.4	12.6
Fish	15	7	4	...	18	...	...	...	...	18	...	18	1.0	2	.2	.1
Eggs	80	1	22	...	59	4	...	...	4	55	...	55	3.0	12	.9	.9
Vegetable oils ...	53	40	...	6	87	...	...	17	17	70	...	70	3.8	92	...	10.4
Slaughter fats ...	139	12	...	6	145	...	...	18	18	127	...	127	6.9	146	.8	15.9
Butter	*13	...	...	...	13	...	...	...	...	13	...	13	.7	14	...	1.5
Total fats													4/10.1	252	.8	27.8
Whole milk	2,499	...	1	...	2,498	...	...	1,028	1,028	1,470	...	1,470	79.9	142	7.4	7.0
Dried milk	2	22	...	...	24	...	...	...	...	24	...	24	1.3	18	.9	1.1
Cheese	*94	...	1	...	93	...	...	...	...	93	...	93	*5.1	42	2.5	3.4
Total milk and cheese														202	10.8	11.5
Total consumption.														2,900	81.8	63.1

1/ Includes barley equivalent of malt imports.

2/ Includes cocoa beans.

3/ Extraction rate for cocoa beans only.

4/ In fat content.

APPENDIX

General

This section deals first with the general methods used in constructing the food balances for the 8 countries. Then there is discussion of specific problems in individual countries.

Production estimates used in this study were generally determined before meaningful utilization data were available. They were based on available official statistics of foreign governments, other foreign source materials, U.S. Agricultural Attache and Foreign Service reports, and research of USDA country specialists. The balances for these countries generally support production estimates previously published by USDA.

Seed and waste deductions in all countries were made on a more or less standardized basis, with minor differences based on data published in respective countries. Milk listed under industrial use is the quantity allocated for butter and cheese production. Alcohol, starch, soap, and paints are the main nonfood industrial items utilizing food as a raw material in these countries. The principal food raw materials are grains, potatoes, fruits, fats, and oils. In most countries, information on industrial use of foodstuffs was scarce; allocations for this purpose may be underestimated. When information was available, an attempt was made to convert industrial production back to the food raw-material equivalent. If such output data were not available, and the determination of industrial uses was considered important in establishing the food consumption level, the relative proportion used in neighboring countries was the basis for judgment. The industrial animal fat allocations were generally limited to tallow, except for the USSR, though some lard may also be used industrially. For vegetable oils, edible and inedible oils were separated where possible. The sediments from edible oils, plus inedible oils when included in the production statistics, were allocated for industrial purposes. Where output data

of soaps, paints, etc., were available, this made possible the testing of the industrial allocation. It was assumed that over-allocation of vegetable oils for industrial uses may have offset the probable under-allocation of animal fats.

Quantities denoted as used for animal feed were generally a residual allocation. The validity of assumptions for allocating feed was tested by relating animal units to total feed grains allocated. Because potatoes are important as feed in some countries, they were converted to feed grain equivalent and included in the calculations. The relationship between feed grain allocated and animal units varied between 300 and 1,000 kilograms per unit. Most of this variation, however, can be attributed to the varying relative importance of hogs and poultry in total animal units, which ranged from 16 percent in the USSR to 38 percent in Hungary. Feed allocations other than grains and potatoes, such as pulses and vegetables, were made only when information from official sources was available.

Incomplete data often hampered allocating milk between alternative uses. This was most crucial for Bulgaria, Rumania, and the USSR, for which no adequate official data on human consumption are published. Data on milk deducted to produce butter were generally obtainable, but, no attempt was made to indicate skim milk utilization. Cheese production and consumption data are very limited. In all cases, milk allocated for cheese production was deducted from whole milk. Except for Yugoslavia, per capita milk consumption includes the whole milk equivalent of condensed and dry milk. Milk allocated for feed includes waste.

The caloric, protein, and fat coefficients used in this study were taken from Food Composition Tables for International Use, Food and Agricultural Organization of the United Nations, March 1954. But, even here, some judgment in selecting coefficients was often necessary.

Bulgaria

Grain consumption was estimated on the assumption that all flour and groats were fully reported in the official statistical yearbook. While this source suggested this was the case, it was not explicit. Specific grains shown in the balance are estimates based largely on availability. Depending upon wheat and rye availabilities, from 5 to 20 percent of the flour production was estimated to have come from corn. Statements in the Bulgarian press refer to corn meal in unspecified amounts being mixed with wheat and rye flour. Groats were assumed to have been derived from barley and, secondarily, oats. The indicated stock build-up reflects above-average wheat harvests in 1957-60. During those 4 years, wheat production exceeded output of both the preceding and succeeding 4 years by about 20 percent.

Statistics on production and area of major vegetables, and total vegetable area were available. Total vegetable production was arrived at by estimating the yield of the area for which no production data were given. Fruit exports include processed products--juices, pulp, etc.--in product weight. The proportion of tree fruits used to produce brandy was assumed to have been about the same as in Yugoslavia.

Information on meat production was often contradictory. Unexplained definitional differences between Bulgarian sources undoubtedly exist. Even so, a persuasive case can be made for exaggeration, especially of beef production. Bulgarian data show beef and veal production to average about 90,000 tons liveweight annually between 1950 and 1955 from a cattle herd of about 1.6 million head. Between 1956 and 1962, cattle numbers ranged from 1.2 to 1.5 million head, but production was reported to have been about 40 percent over the 1950-55 level. This is inconsistent with the herds and feed availabilities. Using January numbers as the base resource, the Bulgarian data indicate that resource productivity after 1955 was 50 to 75 percent greater than in Yugoslavia.

To approximate a meat production level more consistent with livestock numbers and feed availabilities, estimated balances for cattle, hogs, and sheep were constructed, based largely on reproduction and death rates from Bulgarian sources. The resulting beef and pork estimates were about 40 and 25 percent, respectively, below the Bulgarian estimates, while mutton and lamb were about the same.

Czechoslovakia

Production and consumption data for Czechoslovakia were reasonably adequate. However, some assumptions had to be made about nonfood utilization, and it was necessary to supplement trade data.

Official Czechoslovakian meat production data were expressed in liveweight. In calculating carcass weights, official data were used when available. For fats and offals, they were not available and Polish dressing percentages were used. Because no official data were available for poultry and butter production, estimates shown in the balance were calculated from published per capita consumption and trade data.

Grains and potatoes allocated for feed were residuals. They may be overstated and industrial use understated. The relatively large wheat allocation for feed was necessary to achieve a balance between official production, import, and consumption data. Whether this amount was actually fed or whether this indicates a deficiency in the official statistics is unknown. Much the same situation existed in East Germany. The amount of grains and potatoes allocated for feed appears reasonable.

It was necessary to supplement official meat, cheese, fats, and oil trade data with secondary sources.

East Germany

Per capita consumption, production, and export data in the Statistisches Jahrbuch were assumed essentially correct, since, in general, they

were internally consistent. It was also assumed that technical coefficients in Handbuch des Genossenschafts Bauern were essentially correct.

Based on these assumptions, production plus or minus net trade was allocated to food, seed, and industrial uses with some measure of confidence. In most cases, changes in stocks and feed uses were treated as residuals.

For crops, production was the amount reported as harvested. Meat production was based on livestock slaughtered (reported in liveweight), with deductions for slaughter losses, fats, and offals.

The only exports of agricultural commodities reported by East Germany were sugar and some seed wheat. All other data on exports were based on statistics of importing countries with an estimate made for exports by East Germany to West Berlin.

Changes in stocks were assumed minimal, because the production decline in 1961 generally offset better than average crops in 1959-60.

Industrial use of cereals includes wheat and rye for alcohol at the rate of 1 ton of grain per 300 liters. Use of barley for beer production was estimated at 266 kilograms per 1,000 liters. Industrial uses of milk included milk for butter and cheese production; 23 tons of milk per ton of butter and 8 tons of milk per ton of cheese. Industrial use of potatoes was estimated for starch, glucose, and other products.

Hungary

Official Hungarian production and consumption data were adequate. In addition, detailed official food balances for 1950-55 were available as a guide. While more definitional adjustments, especially on consumption, were necessary for Hungary than for most other countries, data for making these adjustments were often available.

Official Hungarian grain consumption data (excluding rice) were given as total flour. In the USDA balance, the grain equivalent of flour consumption was allocated to wheat and rye. A small amount of the flour was undoubtedly produced from corn and barley. The total supply of rye minus seed and waste was assumed to be consumed as food, with no allocation for feed. Wheat allocated for feed is the residual after filling the consumption requirement not covered by rye. There were no indications of a substantial change in wheat stocks, though minor changes may have occurred. No allocation was made for alcohol produced from grain and potatoes. The amount shown as used for feed may include some grain and potatoes used to produce alcohol.

The industrial sugar allocation reflects the situation in the mid-1950's and is only an approximation. The indicated increase in stocks may have partly been used for industrial purposes. The allocation of pulses between feed and increased stocks depended on the type of pulse considered.

Vegetable production data for 1959-61 were incomplete. Items for which data are available represented 80 percent of vegetable output in 1933-37. Total 1959-61 production was estimated on the assumption that this relationship was the same as in 1933-37. Even so, per capita vegetable consumption, a residual in this instance, was about 30 kilograms less than official Hungarian data. However, a further upward adjustment in production, does not seem warranted. It seems more likely that the vegetables for which data were not published would have decreased in relative importance rather than increased. Also, no vegetables were allocated for feed, although some vegetables are fed. In addition, exports are somewhat understated, because canned exports could not be adjusted to fresh equivalent.

Difficulties also were encountered in balancing fruit. There is some question regarding what the tree fruit production data represent. The allocation of grapes for making wine was based

on official data. About one-third of the fruit other than grapes was assumed to have been used to produce brandy. The residual for consumption as fruit was about 20 kilograms per capita less than the official Hungarian data. Best evidence, though not conclusive, points to the allocation of one-third of fruit for brandy as being on the low side. In addition, fruit exports were somewhat understated, since it was impossible to determine the fresh equivalent of processed exports.

Rather substantial adjustments in official meat and animal fats data were necessary because of definitional problems. Hungarian meat data included live animal exports. Also, most bacon was included in animal fats rather than meat. Since only numbers, and not weight, of slaughter animals exported were published, the average weight of state-procured animals was used to estimate the weight of exported live animals. It was assumed that fat constituted 30 percent and meat 70 percent of the combined pork and fat production.

The allocation of milk for making butter, at 24.5 to 1, was adequately documented. The validity of the assumed 8.5 parts whole milk per 1 part cheese, however, was much less precise. An undetermined amount of cheese was produced from skim milk. In the USDA balance, only 18 percent of the milk was allocated to feed as a residual, which also includes waste. Two Hungarian sources indicate 25 to 30 percent of milk production was fed to livestock.

Poland

Official Polish production and consumption data were reasonably adequate. However, some definitional adjustments had to be made. In some instances, information on nonfood use was incomplete. Potato and grain allocations for feed were somewhat out of line with the other countries. Among factors which may have contributed to this disparity are an understatement of industrial uses, an overstatement of production

estimates, or an understatement of human consumption. No other evidence, however, substantiates these hypotheses.

Official meat production data include fat and edible offals. Polish data were used in converting meat data from gross to net. Processed meat exports were converted to carcass equivalent at the following rates: canned pork, 0.37:1; smoked meat and bacon, 0.23:1; canned poultry, 0.98:1.

It was necessary to estimate cheese production, since no official data were given. The estimated amount of milk used to produce cheese was then deducted from the official estimate for consumption of milk and milk products. Butter production was calculated from consumption and trade data.

Rumania

Less official food consumption information was available for Rumania than for any other country in this study. To construct this balance it was necessary to make many judgments and to borrow liberally from experiences of neighboring countries. The most crucial judgments related to meat.

Estimating meat production involved adjusting the official Rumanian data, which were on a liveweight basis and included increases in herds. This required assigning an assumed weight to each type of livestock by age. For this purpose, the Hungarian weights were adopted as the best available. Average dressing percentages--again based on neighboring country information--were used. The resulting per capita consumption of slightly less than 30 kilograms was judged a maximum and possibly overstated. Aside from methodological inexactness, it is quite possible that exports exceeded those indicated in the balance.

For total cereals, more confidence is placed in the present per capita consumption estimate

than in previous attempts because of the feed usage estimates recently published by the Rumanian Government. Consumption of individual grains, however, is still only a rough estimate. Official Rumanian export data were limited to an aggregate category, "cereals excluding seed." It was possible to account for approximately 60 percent of the total exported in 1959-61 by using statistics of importing countries. Corn accounted for approximately 80 percent of exports in importing-country sources. Sporadic wheat shipments to the USSR accounted for 15 percent.

Over half of the grain exports during 1959-61 occurred in 1961. For that year, importing-country statistics were 400,000 tons short of the grain export figure published by Rumania. Fragmentary data on state procurements and flour production by state mills in 1961 indicate that about 200,000 tons of wheat and more than 500,000 tons of corn above that documented by importing country statistics were available for export or increasing stocks. In this study, grain exports not corroborated by importing-country data were assumed to be corn. This means that wheat consumption could be overstated and corn consumption understated. The small amounts of other grains consumed were assumed to have been reflected in consumption estimates for wheat and corn.

The estimated per capita sugar consumption is considered a maximum, despite relatively large amounts allocated to stocks. It was assumed that table sugar constituted about 75 percent of consumption. This was estimated by retail sales and distribution to beet producers as partial payment. In Poland and Czechoslovakia, table sugar's relative share of total consumption amounted to 75 and 65 percent, respectively. But in Yugoslavia, it was about 90 percent. The relatively large indicated increase in stocks is also considered a maximum. In all likelihood, the build-up of stocks includes some sugar exported in food industry products and some used for nonfood purposes.

The allocation of potatoes between food and feed for Rumania was based on what was known

about Yugoslavia, which had about the same population and potato production. Pulse consumption was estimated by assuming that all beans and lentils were consumed as food while most of the peas were fed. Per capita consumption of other vegetables is the residual of production minus exports and waste; this estimate is about 30 kilograms higher than official data indicate in Yugoslavia and probably includes some used as feed. Estimated fruit consumption was a residual after deducting the amount used for making wine and brandy. The fruit allocation for brandy was based entirely upon the proportion of tree fruits used for brandy production in Yugoslavia.

The milk consumption estimate was based largely upon situations in neighboring countries. Consumption was arrived at by deducting about 20 percent for feed and waste and about one-third for butter and cheese use.

Soviet Union

Constructing food balances for the USSR presented a number of fundamental difficulties. It was not possible to work directly with published Soviet figures without making adjustments on the production of certain crops and livestock products, especially grains, oilseeds, meat, and milk. With very few exceptions, precise utilization data were not available from Soviet sources. Often the problem was not an absence of data, but conflicting evidence. These considerations made necessary a large number of assumptions; a considerable margin for error exists. Thus, the balance is experimental and tentative.

No attempt is made to detail each assumption and evaluate the evidence which led to its adoption. Such information will appear in a forthcoming USDA publication on the subject. The most important assumptions and their implications are as follows:

Total caloric intake was, according to Soviet sources, about 3,000 calories. These sources indicate intake could have been as high

as 3,300 and as low as 2,900. A deviation of 100 calories from the estimate in this balance could have been made with relatively minor changes in assumptions about grains and potatoes.

Cereal and pulse consumption was estimated in this balance to have been about 205 kilograms per capita during 1959-61. However, Soviet sources could be used to support levels as low as 173 and as high as 220. The distribution of individual grains within the total is less certain.

Consumption of potatoes was estimated to have been 138 kilograms per capita. Soviet sources support levels from 100 to 150.

Meat and meat products was one category about which there can be considerable confidence. Soviet meat production data include fat and a variety of subproducts, some of which are considered variety meats in the United States and some of which are not. These products were deducted from the Soviet meat series.

The production and utilization of fats and oils were subject to only minor possibilities of error after Soviet vegetable oil production was raised 200,000 tons to take on-farm pressing into account. Animal fats estimates were obtained from the Soviet meat series. The utilization section for fats and oils was based upon Soviet data.

Sugar production and utilization were based entirely on Soviet sources. Vegetables, fruits, and other items did not involve major assumptions. Some vegetables and fruits assigned to seed and waste may have been fed.

Industrial uses were based upon Soviet sources where possible. That they loom relatively large in the Soviet balance is a function of the present heavy dependence of Soviet industry on such food raw materials as vegetable oils and grains.

Seeding rates were derived from Soviet sources and waste was based upon normal deductions. For grains, the waste factor of 5 percent would be low if official production figures based on bunker weight were used. However, the overstatement--for this and other reasons--in the grain sector was assumed to be eliminated by the USDA estimates of barn outturn for the major grains used in the balance. The large waste deduction for fish was derived from a Soviet source.

Feed was considered a residual item in all cases except milk. Feed allocated in the balance plus corn in the milk-wax stage, bran and oilcake add up to about 44 million tons of concentrates. Other food processing byproducts, mixed feeds, fish meal and other concentrates, plus the feeding of otkhody (waste and trash and other foreign matter picked up in combines), were assumed to cover the difference between this figure and the reported concentrates fed--about 55 million tons. Milk and meat processing byproducts are not counted in the concentrates section of reported Soviet feed inputs.

Changes in stocks were treated as residual items, except for sugar stocks, which were based upon Soviet sources.

Despite the acknowledged margin of error, the structure of the Soviet diet reflected in this balance is essentially correct. Even if the total caloric consumption were increased by 100 to 200 calories per day, virtually all of this would have to come from increasing the consumption of cereals and potatoes, and possibly milk.

Yugoslavia

Official Yugoslav production and consumption data were reasonably adequate. Per capita consumption estimates in this study are essentially the same as those officially published in Yugoslav sources, except for fruits and pork, which are lower by 15 and 1 kilograms per capita, respectively. However, the calorie, fat, and

protein coefficients implied in the Yugoslav calculations appeared generally higher than those used in this study.

Except for pulses, the indicated stock changes were based upon data on retail and wholesale turnover, and consumption of raw materials in the food industry and information released by the Yugoslav Federal Food Administration. The large build-up in pulse stocks was the result of replenishing stocks in 1959 and 1960 after the small 1958 crop.

Allocation for feed was the residual. No milk was allocated for feed, since Yugoslav milk production data state that milk for feed is excluded. The quantity of milk allocated for butter and cheese production is a residual. This appears

reasonable when compared with estimated butter and cheese production, computed from Yugoslav consumption estimates. However, as a residual, it probably includes some waste.

Official Yugoslav wheat and rye consumption estimates were given as a single item. In this study, no rye was allocated for feed and any actually fed is included in the estimate for wheat. The discrepancy between USDA and Yugoslav fruit consumption estimates may lie in the allocation of fruit for making alcoholic beverages. It was based on Yugoslav production data for wine, plum brandy, and other fruit brandies. The following proportions were used: 1.55 metric tons of grapes per 1,000 liters of wine; 4.45 tons of plums and other fruit per 1,000 liters of brandy.

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