Safety rules go into effect

New government rules covering safety in grain elevators, soybean flaking facilities, dry grinding operations of soy cake and other processing sites take effect at the end of March. The purpose of the new U.S. Occupational Safety and Health Administration (OSHA) regulations is to improve safety conditions for the nation's elevator and processing plant employees, according to James Foster, OSHA's director of information.

OSHA's rules are the result of 10 years of work, Foster said, explaining that the agency began looking seriously at safety standards for grain handlers and processing plant employees after 59 people were killed and 49 were injured between late 1977 and early 1978 in industry-related accidents. Foster said U.S. Department of Agriculture (USDA) statistics indicate that from 1983 to 1985, 13 people died and 63 were hurt as a result of explosions at 55 handling facilites.

"Our finding is that any grain elevator fire or explosion is a function of four ingredients: oxygen, fuel, an enclosed space and source of ignition," Foster said. "The new rules deal mainly with fuel (dust) and sources of ignition because the other two are really not easily controlled."

OSHA's housekeeping regulations require elevator and processing plant operators to sweep up grain dust when it reaches accumulations of one-eighth of an inch in areas within 35 feet of inside bucket elevators and in enclosed areas containing grinding equipment and grain dryers. Rules governing filter collections will go into effect on March 30, 1989. After that time, all filters will be required to have monitoring devices.

To limit ignition sources, OSHA after the end of March 1988 will require all grain-stream processing machinery to be equipped for the removal of ferrous materials, Foster said. "The object of this standard is to control 'trash metal.' Bits of metal such as iron can cause enough spark to ignite a grain elevator fire," he added. Employers also will have to issue work permits for welding that occurs outside a welding shop.

Other safety regulations require employers to develop emergency action plans and training programs based on OSHA fire protection standards. The emergency action plans must include emergency escape routes and procedures to determine who handles rescue and medical duties following an explosion. Training also must be provided for employees once a year or whenever they make a job change that would expose them to new hazards on the job, Foster said.

Other rules govern entrance into bins, silos and tanks. Under the regulations, employers will have to issue permits to employees to work in those areas. The permits must certify that certain precautions will be observed to protect workers in those areas, Foster said. Employers will have to disconnect all mechanical and electrical equipment in the area and test the atmosphere for gases and toxic agents. Workers also will be required to wear body harnesses and lifelines while inside bins; employers will be required to have rescue equipment available. Foster said that observers trained in rescue operations must be present whenever anyone enters bins and tanks. Employees are prohibited from entering silos, bins and tanks whenever there is a buildup of product on the inside walls of the structure, so "if bridging occurs, that buildup won't collapse onto the employee," Foster said.

According to Foster, regulation violators will be held accountable. In cases in which an employer's willful violation of the rules results in the death of an employee, the employer, if criminally convicted, could face six months in jail, a $10,000 fine or both. Penalties in civil cases also could result in a $10,000 fine. "Serious violations—those are violations where there is a substantial probability that death or injury could occur—are subject to a fine of $1,000 per violation," Foster said.

Additional information on the new regulations can be obtained from the OSHA regional offices in Chicago, Illinois; Kansas City, Missouri; Denver, Colorado; Seattle, Washington; San Francisco, California; Dallas, Texas; Philadelphia, Pennsylvania; Boston, Massachusetts; New York, New York; and Atlanta, Georgia.

Oilseed trade competitive

The recently released U.S. International Trade Commission (ITC) report, *U.S. Global Competitiveness: Oilseeds and Oilseed Products*, concluded that despite holding certain competitive strengths, the U.S. industry "faces numerous external impediments to international growth." Probably the most significant barrier, according to the report, is "the technological capability for significant expansion of soybean and palm oil production in several competing countries." U.S. market share will be eroded further when that technological potential matches the right global conditions, the report said.

Barriers to foreign markets, foreign and domestic government policies and programs, slow and irregular world economic growth, debt problems in developing nations and fluctuating exchange rates also are factors limiting growth, the study said. While most of these barriers are outside the control of the U.S. government and the processing industry, certain market barriers have been overcome as more U.S. oilseed crushers have acquired processing facilities in foreign markets.

The study, which focused mainly on soybeans, said U.S. strengths include higher crop yields and soil productivity, strong research and more favorable transportation costs. However, despite lower transportation costs, U.S. fixed production costs remain higher than those of Brazil and Argentina, its major competitors.

As world markets for oilseeds and oilseed products increase, soybeans and soybean products continue to decline in importance, the report said. Rising income level and population growth have resulted in more demand for meat and other

TABLE 1

U.S. shares of selected world markets, 1978–86

Market share measure	1978	1979	1980	1981	1982	1983	1984	1985	1986
Oilseed exports:									
United States[a]	22,463	21,285	22,720	22,647	25,964	22,619	20,358	16,996	21,030
World[a]	28,919	29,239	30,475	30,173	31,671	28,681	28,572	27,078	28,393
U.S. share of world exports[b]	78	73	75	75	82	79	71	63	74
Oilseed meal exports:									
United States[a]	6,314	6,463	7,447	6,824	6,453	6,748	4,662	4,857	6,085
World[a]	17,322	18,013	19,726	21,970	20,759	23,755	19,346	20,878	19,472
U.S. share of world exports[b]	36	36	38	31	31	28	24	23	31
Soybean crush:									
United States[a]	26,496	28,539	30,424	27,990	28,464	29,145	26,630	28,414	29,660
World[a]	62,655	66,399	74,034	72,304	75,544	76,328	73,416	77,220	79,253
U.S. share of world crush[b]	42	43	41	39	38	38	36	37	37
Soybean exports:									
United States[a]	20,710	20,905	21,787	21,860	25,520	22,728	19,596	16,928	21,065
World[a]	24,057	25,541	26,985	26,509	29,258	26,520	25,830	25,407	27,782
U.S. share of world exports[b]	86	82	81	82	87	86	76	67	76
Soybean meal production:									
United States[a]	20,930	22,714	24,331	22,362	22,682	23,158	20,965	22,317	23,348
World[a]	49,165	52,418	58,401	56,920	59,581	60,147	57,614	60,492	62,431
U.S. share of world production[b]	43	43	42	39	38	39	36	37	37
Soybean meal exports:									
United States[a]	5,936	6,087	7,024	6,344	6,221	6,488	4,414	4,715	6,509
World[a]	14,888	15,242	18,213	20,420	20,823	23,508	21,074	23,062	23,543
U.S. share of world exports[b]	40	40	39	31	30	28	21	20	28
Soybean oil production:									
United States[a]	4,818	5,218	5,487	5,126	5,072	5,286	4,991	5,214	5,362
World[a]	11,233	12,003	13,318	13,134	13,420	13,658	13,372	13,967	14,150
U.S. share of world production[b]	43	43	41	39	38	39	37	37	38
Soybean oil exports:									
United States[a]	929	1,129	1,096	819	938	786	1,011	587	600
World[a]	2,632	3,046	3,299	3,572	3,596	3,634	4,021	3,575	3,138
U.S. share of world exports[b]	35	37	33	23	26	22	25	16	19

[a]1,000 metric tons

[b]Percent

Sources: Compiled from *Oil World* and from official statistics of the Food and Agriculture Organization of the United Nations, this is Table 8-1 from *U.S. Global Competitiveness: Oilseeds and Oilseed Products,* published December 1987 by the U.S. International Trade Commission.

food products, thus increasing oilseed meal and vegetable oil demand. Although overall oilseed meal consumption increased by 2.5% annually between 1980-1986, world consumption of soybean meal only increased at an annual rate of 0.8% during the same period. At the same time, world consumption of soybean oil grew by 1.4%, and consumption of all vegetable oils grew by 4.5%.

Because consumption growth rates are higher in developing countries, oil demand will grow more quickly than meal demand. This trend "has implications for oilseed markets," the study said, adding, "The relatively high growth of oil demand will benefit U.S. soybean producers less than European rapeseed and sunflowerseed producers, because soybeans have proportionately smaller oil content and a higher meal content than either rapeseed or sunflowerseed. Most affected will be palm oil producers such as Malaysia, for which oil markets are paramount and meal markets are inconsequential."

The trade commission estimated that U.S soybean exports represented 47% of production in 1981 but dropped to 34% in 1987. As a share of production, soybean meal exports peaked at 29% in 1979; in 1987, soybean meal exports (as a share of production) were forecast at 24%. U.S. soybean oil exports reached a record 2.7 billion pounds in 1979, but fell to 1.1 billion pounds in 1986. The share of oil production that went for export dropped from 22% to 9% during that time.

Increased foreign production and trade has softened the U.S. export market and reduced the influence U.S. firms have over prices, the commission's report said. As prices declined, the U.S. Department of Agriculture (USDA) drew soybean supplies out of the market, which raised soybean costs for

soybean crushers and exporters. This caused many U.S. plants to operate at reduced capacity or not at all, according to the report, which added, "U.S.-based processors are expanding their foreign investments in an attempt to escape relatively high U.S. soybean prices as well as to circumvent trade barriers."

The commission's study indicated that as companies continue to increase their multinational activities, "U.S. firms in their capacity as U.S. producers and processors are declining in importance."

U.S. soybean crushers told the commission they plan to use a number of strategies in the face of greater foreign competition. Price-related strategies include efforts to maintain price competitiveness and match competitors' price terms. Product-related strategies focus more on improving product quality, concentrating on market niches where firms have competitive advantages amd improving or expanding product service or support.

Four firms said they would develop joint ventures with U.S. firms in their domestic operations. Another firm said it would develop a foreign joint venture. Two firms plan to invest in foreign production—one to improve its cost position and the other to improve market access.

Copies of *U.S. Global Competitiveness: Oilseeds and Oilseed Product* are available from the U.S. International Trade Commission. To obtain USITC Publication 2045, contact the Publications Office, U.S. International Trade Commission, 500 E St. SW, Washington, DC 20436.

FDA approves lipase method

The U.S. Food and Drug Administration (FDA) has granted generally recognized as safe (GRAS) status to palm oil-based cocoa butter substitutes manufactured using lipases. In 1984, Fuji Oil Co. Ltd. of Japan requested GRAS status for cocoa butter substitutes produced by this alternate method. The method uses a lipase from *Aspergillus niger* in the interesterification of partially saturated 1,2,3-triglycerides (derived from palm oil) and ethyl stearate.

FDA determined that the cocoa butter substitute was safe based on its chemical similarity to cocoa butter substitutes previously granted GRAS status. Fuji Oil's substitute also contains fatty acid ethyl esters, hexane residues and residuals from the lipase preparation. FDA's regulations limit hexane to no more than five parts per million (ppm) and residual fatty acid ethyl esters to no more than 20 ppm.

Palm oil-derived cocoa butter substitutes previously granted GRAS status are produced by directed esterification of fully saturated 1,3-diglycerides with the anhydride of food-grade oleic acid. The catalyst is trifluoromethane sulfonic acid. Details: *Federal Register*, Dec. 17, 1987, pp. 47919-47921.

In other palm oil news, American Cyanamid Co. has asked the Environmental Protection Agency (EPA) to exempt from tolerance requirements the herbicide imazapyr in or on palm oil. Details: *Federal Register*, Dec. 16, 1987, p. 47754.

FDA studies food processing

The Food and Drug Administration's (FDA) Center for Food Safety and Applied Nutrition has begun research on process-induced changes in food matrix constituents. The production of *trans* fatty acids and cholesterol oxides during food processing is one area of research.

According to reports in *Food Chemical News*, the center is redirecting its efforts toward process-oriented research. This redirection is partly the result of a review of the center's research programs that concluded the center was "ill-equipped to conduct research in food science."

The agency also will conduct research on traditional and new food processing techniques to examine what effects processing parameters have on the quality and safety of foods. More work also will be done on mycotoxins, packaging technology and chemical composition of foods and food constituents. For a copy of "Food Science Research Program", contact Karen Carson, Division of Food Chemistry and Technology, FDA, 200 C St. SW, Washington, D.C. 20204, telephone 202-485-0110. Details: *Food Chemical News*, Jan. 11, 1988, pp. 61-62.

In other FDA action, the agency has delayed the closing date for the provisional listing of D&C Red 33 and D&C Red 36 until March 4, 1988. Details: *Federal Register*, Jan. 4, 1988, pp. 19-20.

U.S. trade rep studies issue

U.S. Trade Representative Clayton Yeutter has agreed to act on the American soybean Association's (ASA) Section 301 complaint against the European Economic Community (EEC).

In December, ASA filed a complaint claiming that European oilseed subsidies are unfair to U.S. soybean exporters. The U.S. Trade Representative will first request consultations with the EEC. If the consultations fail to resolve the problem, the U.S. government then would request a General Agreement on Tariffs and Trade (GATT) panel to investigate the charges.

Meanwhile, the EEC said it "regrets" the U.S. probe into alleged curbs on soybean exports to Europe. In a written statement, the EEC executive commission said there is no factual basis for the claim that high subsidies to European soybean producers have contributed to a 40% decline in U.S. soybean exports to Europe since 1982. The commission instead blamed erosion of the U.S. export market in Europe largely on increased imports of cheaper soybeans from Brazil and Argentina.