He said there were many similarities between the OTA report and FDA's 1981 study on emerging technologies (See FOOD CHEMICAL NEWS, July 6, Page 48), adding that over 30 new technologies identified fall into the following four major groups:

> "The new nutrient sources included genetically engineered plants and animals through recombinant DNA, the growth of aquaculture and the utilization of microbial biomass production and animal waste as untapped sources of protein. New processing and preservation methods. . . (included) the use of chemicals to sterilize containers, food irradiation and solar dehydration. . . . The new technologies. . . included development of new methods for detecting contaminants and other hazardous substances in the food supply. . . . New ways of food packaging. . . (included) retortable pouches and other non-rigid containers. . ."

"I believe that the research investigations that the FDA is carrying out will enable us to be ready for the impact of these technology developments," Schaffner said, adding, "FDA will continue to monitor these new products to make sure that they are safe."

TCDF's CONSIDERED 30-33 TIMES LESS TOXIC THAN TCDD's, FDA NOTES

TCDF's (tetrachlorodibenzofurans) are 30-33 times less toxic than TCDD's (tetrachlorodioxins), according to work done at the National Institute of Environmental Health Sciences, the Food and Drug Administration noted recently.

In a letter to Dr. Norman E. Dyer, of the Environmental Protection Agency's Pesticides and Toxic Substances Branch in Dallas, Tex., FDA's John M. Taylor, Director of the Division of Regulatory Guidance in FDA's Bureau of Foods, noted that FDA "has previously advised the health officers of the Great Lakes States that they should consider limiting the taking of fish from areas where the TCDD residues exceeded 50 p.p.t." (See FOOD CHEMICAL NEWS, Sept. 28, Page 15).

"If one accepts the toxicity data from NIEHS comparing the TCDF's with the TCDD's then the level of concern for TCDF residues would range at levels of 1500-1650 p.p.t. when consistently found in samples of the edible portion of fish consumed by people on a frequent basis," Taylor pointed out, noting "that the advice given to the health officers in the Great Lakes States is only a public health advisory and the 50 p.p.t. does not constitute an action level or any level in a regulatory sense."

The FDA-er said that scientists in the agency's Bureau of Foods would need considerably more information concerning TCDF residues in multiple samples of the edible portion of fish, the kinds of fish from which the residues were measured, and information related to human consumption of the species of fish of concern before making any kind of determination as to whether any health hazards exist based on TCDF levels in fish.

Overall Adverse Findings in 1979 Fish Survey Were 4.6%

The overall adverse findings rate for both domestic and imported samples of fish in FDA's fiscal year 1979 pesticides and metals in fish program, released recently, was 4.6%, contrasting with 6% in fiscal year 1978.

The occurrence rate for PCB (polychlorinated biphenyl) residues in domestic samples in fiscal year 1979 was 43%, while the occurrence rate in import samples was 8%.

Of the domestic samples, 5.5% were in the range of 2-5 p.p.m., while ten (1.0%) exceeded the 5 p.p.m. temporary tolerance for PCBs. No imported samples were above the tolerance for PCBs.

The most frequently found residues (excluding the selected elements) detected in domestic samples were DDE (52.6%), PCBs (42.0%), dieldrin (29.6%), BHC (28.4%), TDE (27.2%), cis-chlordane (17.6%), trans-chlordane (16.4%), and DDT (14.5%).

For imported samples the residues found most frequently were DDE (26.7%), BHC (17.0%), DDT (14.6%), TDE (8.4%), PCBs (8.0%), HCB (6.2%), and dieldrin (5.9%).

Total chlordane showed a 24.2% occurrence rate of the domestic samples, and 3% of the samples exceeded the 0.3 p.p.m. action level, with catfish, carp and suckers (buffalo) the major species involved.

Seven domestic samples (0.7%) exceeded the 0.3 p.p.m. action level for dieldrin, and the overall incidence of residues in domestic samples was 30.9%.

For the DDT group, the adverse findings rate in domestic samples was 1.1%, with sable fish, eels, cod, mackerel, and ocean perch having the highest average levels of DDE. The 5 p.p.m. action level for the DDT group applies to the compounds individually or in combination.

Isopropyl diphenyl phosphate, an industrial chemical, was found in four domestic samples at levels of 1.71-16.84 p.p.m. No action level or tolerance has been established for this residue.

Nine domestic samples (0.9%) exceeded the 1 p.p.m. action level for mercury in fish while 19 imported samples (3.7%), most of which were swordfish, exceeded the 1 p.p.m. action level for mercury.

Of the 84 samples of canned domestic tuna sampled for arsenic, 20 had levels in excess of 1.20 p.p.m., with 3 of the samples exceeding 2.40 p.p.m. Eighteen ot the 88 samples of canned domestic tuna analyzed had lead levels in excess of 0.50 p.p.m., with 8 of the samples containing more than 0.90 p.p.m. The maximum level of cadmium detected in 84 samples of canned domestic tuna was 0.24 p.p.m.

Of the 87 samples of canned domestic tuna analyzed for selenium, 58 had levels in excess of 0.60 p.p.m., of which 7 exceeded 1.00 p.p.m.

There is no regulatory limit set for any of these elements in fish.

"In general," FDA said, "the levels of pesticides, industrial chemicals, and selected elements found in this survey were lower than levels determined to be health hazards to the consumer."

Lead, Cadmium, Mercury Within Acceptable Limits in Infant, Toddler Diets

According to the findings ot FDA's fiscal year 1978 total diet studies for infants and toddlers, lead, cadmium and mercury "were well within any current or suggested acceptable levels" for these elements.

Lead was present at 25 micrograms in infant diets and at 35 mcg in toddler diets; cadmium at 6 mcg in infant and 11 in toddler diets; and mercury at 0.2 mcg in infant diets and 0.7 mcg in toddler diets.

Arsenic was present in infant diets at 2 mcg and in toddler diets at 18 mcg and selenium was present at 18 mcg in infant diets and 52 mcg in toddler diets.

In some cases, FDA noted, zinc "exceeded the Recommended Dietary Allowance, but not to the extent of posing any hazard."

It was present at 5 mcg in infant diets and at 18 mcg in toddler diets. The RDA range for infants and toddlers is 3-10 mcg per day. FDA noted that zinc is naturally present in foods at higher levels than the other metals included in the survey.

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CHOLESTEROL QUESTION DELAYING FDA FOOD LABELING PACKAGE

Unresolved questions within the Food and Drug Administration about cholesterol labeling of foods are delaying the issuance of a package of food labeling regulations (See FOOD CHEMICAL NEWS, June 28, Page 30).

The agency is considering doing away with the current restrictive approach to cholesterol labeling, which mandates that a statement on physician's advice be used whenever cholesterol or fatty acid labeling appears. It would propose a regulation which would define the terms "low cholesterol," "reduced cholesterol," and "cholesterol free," and would require labeling of both fatty acids and cholesterol when either is declared.

Included in the labeling package is an announcement that the agency will retain the current "and/or" labeling approach for fats and oils, rather than adopt the more restrictive approach proposed as part of the 1979 labeling initiative (See FOOD CHEMICAL NEWS, Dec. 24, 1979, Pages 3, 7, 18, and 19).

Three documents to permit greater flexibility in ingredient declarations are also included in the package -- for firming agents, enrichment ingredients and emulsifiers and stabilizers.

The documents on firming agents and on enrichment ingredients will issue as final orders, following the lines of FDA proposals published in 1978 (See FOOD CHEMICAL NEWS, April 10, 1978, Page 31; and April 24, 1978, Page 43).

In response to an industry petition, FDA will propose to permit the declaration of stabilizers and emulsifiers on the ingredient label by the specific name of each stabilizer and emulsifier in parentheses following the collective name "stabilizers" or "emulsifiers," as appropriate.

The proposal would permit individual stabilizers and emulsifiers to be listed in the parentheses in other than descending order of predominance, and would provide for label declaration of stabilizing and emulsifying agents used intermittently in the manufacture of a food even though they may not always be present in the food (See FOOD CHEMICAL NEWS, Jan. 8, 1979, Page 43).

The remaining labeling document to be included in the package is that part of the original labeling initiative in which the agency said it would expedite revision of standards of identity to require declaration of all optional ingredients, including the form of mandatory ingredients where more than one form is available for use.

Definitely not a part of the package is any proposal dealing with labeling the sugar content of foods.

Hayes Expects Resolution of Sodium Labeling Compliance Problems Through Cooperation

"I expect that any compliance problems that are likely to be encountered by industry (in sodium labeling) can be resolved by those affected industries working in cooperation with FDA," Food and Drugs Commissioner Dr. Arthur Hull Hayes wrote May 25 to John F. Speer, Jr., President of the Milk Industry Foundation.