UNDATED
MALATHION

TO: Mr. Cook, Director, DPCT (BF-210)

FR: J.G. Cummings, PEB/DPCT Branch Chief (BF-216)

SU: Recommended International Tolerances for Pesticide Residues

Mr. Beacham's memo of 5/26/60 to Dr. Fischbach requesting comment on the proposed international tolerances was referred to this office.

The international tolerances differ from U.S. tolerances differ quantitatively (in some cases) and in commodity definition. We presume that the qualitative differences reflect differences in regulatory philosphy, rather than interpretation of safety or residue data, i.e., point of sampling - whether tolerances should be based on food "ready" to eat" or on the raw agricultural commodity in interstate commerce.

We do not have available the Proceedings of the WHO Expert Committee and the FAO Working Party which made the recommendations to the Codex Commission for these tolerances. Presumably the U.S. representative to the Codex Commission and the WHO and FAO Committees took into account the economic implications and compatability with U.S. tolerances. Therefore, our comments are confined to a comparison of the present U.S. vs. the proposed international tolerances and the rationale for the U.S. tolerances.

1. Hydrogen cyanide

International tolerance: 75 ppm on "raw cereals" and 6 ppm on flour

U.S. tolerance: 100 ppm on barley, buckwheat, corn, oats, rice, rye, sorghum and wheat from post-harvest fumigation (120.130); 25 ppm on same grains from post-harvest treatment with calcium cyanide (121.125)

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Cont.

~~U.S. tolerances~~: 125 ppm in cereal flours

90 ppm in cereals that are cooked before being eaten)

(There are a number of other HCN tolerances on commodities not directly related to the commodities specified in the Codex tolerances.)

A tolerance of 75 ppm in grains (same level as international tolerance) was originally proposed for the U.S. (PP#195). It was concluded that under the proposed conditions of use, with a 72-hour aeration period, a 100 ppm tolerance was needed. Data indicated that residues would be reduced in normal turnover and processing and essentially zero in bread baked from treated grains.

In the case of the flour (PP#165), it was concluded that a 125 ppm tolerance was necessary to provide for total residues from gain fumigation plus direct fumigation ~~fx~~ of flour. It was recognized that the 125 ppm tolerance was needed only to cover residues in the flour shipped in interstate commerce after fumigation. Data showed that no residues remained in bread made from flour containing 135 ppm.

The 25 ppm discrepancy in the tolerance on grains would appear to be less serious than that on flour: The discrepancy on flour (6 ppm vs. 125 ppm) could present some problems since U.S.. flour fumigated in the holds of ships might contain more than 6 ppm and could be refused entry at foreign ports if sampled as is. We cannot tell from the information available whether the 6 ppm Codex tolerance on flour provides for some aeration or pre-treatment process prior to sampling.

2. Inorganic bromide

International tolerance: 50 ppm on raw cereals

U.S. tolerance: 50 ppm on barley, corn, grain sorghum (milo), oats, rice, rye, wheat

240 ppm on popcorn (Reg. 121.123; 120.146, 120.126)

Thre are, of course, a large number of U.S. tolerances on other commodities for bromide residue resulting from soil and commodity fumigations

with $EtBr_2$ or with MeBr.

We have not seen any Codex definition of "raw cereals" but we would interpret this as applying to the same grains which are listed individually in the U.S. tolerances. Therefore, we foresee no problems here except possibly on the popcorn, if popcorn grain falls within the definition of "raw cereal."

The large U.S. tolerance for popcorn (240 ppm) was established at the request of Dow Chemical Company (PP #251). The larger tolerance was necessary because the long storage periods and production practices peculiar to popcorn require repeated MeBr fumigations (up to 6 fumigations). Residues from consecutive fumigations are additive. Because of the unimportant position of popcorn in the diet there is no safety problem connected with this popcorn tolerance. However, it must be assumed that popcorn which has received the full schedule of fumigations permitted under the U.S. regulations would technically be in violation of the interantional tolerance.

The interantional tolerances are in terms of total bromide ion from all sources with a footnote that tolerances for the organic fumigants may be recommended later. U.S. tolerances are expressed as the inorganic bromide. Data indicate that the volatile fumigants are lost in the normal aeration of fumigated commodities. One exception to this is in 120.146 where tolerances on cherries and plums cover total combined bromine residues under a U.S. Quarantine Program.

3. Malathion

International tolerance: 8 ppm on raw cereals

U.S. tolerance: 8 ppm in or on grain of barley, oats, rice, rye, sorghum and wheat

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Although the commodity defintion "raw cereals" might be somewhat broader than the U.S. tolerances for malation on the above grains, we believe that these tolerances are compatible.

Summary

The above comments are offered from only fragmentary information on the basis for the Codex Commission Recommendations. For a more thorough study we would need to have information on worldwide use of the subject pesticides on the commodities covered, on methodology, and the regulatory program which the tolerances are to be enforced. In the meantime, we see only possible discrepancies, the HCN in flour and inorganic bromide in popcorn. Since the Codex balloting procedure provides for 3 levels of acceptance (full, target acceptance, acceptance with minor deviation), it is suggested that if these standards are to be accepted at all, one of the latter two levels of acceptance be indicated until the discrepancies are resolved.