



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PPOF3865 Glyphosate on Wheat Grain and Straw. Evaluation of Analytical Methods and Residue Data. CBTS No. 6748, 6749, 6750. MRID41484301.

FROM: R. W. Cook, Chemist  
Tolerance Petition Section I  
Chemistry Branch I - Tolerance Support  
Health Effects Division (H7509C)

THRU: R. D. Schmitt, Ph.D., Chief  
Chemistry Branch I - Tolerance Support  
Health Effects Division (H7509C)

TO: R. J. Taylor, PM 25  
Fungicide-Herbicide Branch  
Registration Division (H7505C)

and

Toxicology Branch  
Herbicide-Fungicide and Antimicrobial Support  
Health Effects Division (H7509C)

The petitioner, Monsanto Company, proposes tolerances for combined residues of glyphosate and its metabolite aminomethylphosphonic acid resulting from the application of the isopropylamine salt of glyphosate in or on the raw agricultural commodities wheat grain at 4 ppm and wheat straw at 85 ppm.

Tolerances for residues of glyphosate (N-(phosphonomethyl)glycine) and its metabolite aminomethylphosphonic acid resulting from the application of the isopropylamine salt to various raw agricultural commodities are specified in 40 CFR 180.364(a) at levels from 0.1 to 200 ppm (alfalfa) including a tolerance at 0.1 (N) ppm in grain crops. Tolerances for residues of glyphosate (N-(phosphonomethyl)glycine) and its metabolite aminomethylphosphonic acid are established at 0.5 ppm in kidney and liver of cattle, goats, hogs, horses, poultry, sheep in 40 CFR 180.364(b). There are no tolerances for residues of glyphosate (N-(phosphonomethyl)glycine) and its metabolite aminomethylphosphonic acid in milk, eggs or

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in meat, fat, or meat byproducts of cattle, goats, hogs, horses, poultry, and sheep. Food additive tolerances are established under 40 CFR 185.3500 for residues of glyphosate and its metabolite aminomethylphosphonic acid in sugarcane molasses at 30 ppm resulting from the application of the isopropylamine salt or the sodium sesqui salt for plant growth regulator purposes, and for residues of glyphosate and its metabolite aminomethylphosphonic acid in palm oil, imported olives, dried tea, and instant tea as a result of the application of isopropylamine salt. Feed additives tolerances are established under 40 CFR 186.3500 for residues of glyphosate and its metabolite aminomethylphosphonic acid in dried citrus pulp at 0.4 ppm and in soybean hulls at 20 ppm, as a result of the application of the isopropylamine salt.

There is a registration standard and update (4/90) for glyphosate. Pertinent outstanding data deficiencies in the standard will be discussed when appropriate.

Tolerances for residues of 2,4-D are established in 40 CFR 180.142 (b) at 0.5 ppm in wheat grain and 20 ppm in wheat forage. In addition, tolerances are established at 40 CFR 180.142(h) for residues of 2,4-D and/or its metabolite 2,4-dichlorophenol (2,4-DCP) in milk at 0.1 ppm, in meat, meat byproducts (exc. kidney), and fat of cattle, goats, hogs, horse, and sheep at 0.2 ppm, kidney of cattle, goats, hogs, horse, and sheep at 2 ppm, in eggs and poultry at 0.05 ppm.

The residue chemistry chapter of the 2,4-D registration standard is dated 02/16/88. There is no update of the standard. Numerous data deficiencies are detailed in the 2,4-D registration standard but are in fact merely peripheral to our considerations herein. Data deficiencies in the 2,4-D registration standard in regard to wheat include:

**Magnitude of the Residue on Wheat Grain**

- Data depicting 2,4-D residues of concern in or on wheat grain harvested at regular intervals after preharvest broadcast application of the several formulations. Additional comments apply.
- Data depicting 2,4-D residues of concern in bran, middlings, shorts, and grain dusts processed from wheat grain bearing measurable weathered residues. The established food/feed tolerance will be reassessed following evaluation of the data.
- The registrant must propose a food additive tolerance for residues for flour in which residues may concentrate up to 2X.

**Wheat Straw:**

- Data depicting 2,4-D residues of concern in or on wheat forage harvested at regular intervals after preharvest broadcast application of the several formulations. Additional comments apply.

Two formulations are proposed for use on wheat. One product, Roundup Herbicide RT Reduced Tillage Shuttle 100, EPA Reg No. 524-308, For Control Of Annual And Perennial Weeds In Reduced Tillage Systems, contains the isopropylamine salt of glyphosate as the active ingredient. Tank mixtures with 2,4-D are also suggested. The other product, Landmaster BW For Suppression Of Emerged Field Bindweed And Control Or Suppression

Of Annual Weeds In Fallow And Reduced Tillage Small Grain Systems, EPA Reg. No. 524-351 contains 12.9% of the isopropylamine salt of glyphosate and 20% of the isopropylamine salt of 2,4-D.

### Conclusions

1. The nature of the residue resulting from the application of isopropylamine salt of glyphosate in plants is adequately understood. The residues of concern in plants are glyphosate and its aminomethylphosphonic acid metabolite.

In animals, the nature of the residue resulting from the application of the isopropylamine salt of glyphosate to growing crops is adequately understood, according to the 4/28/90 update to the glyphosate registration standard; the terminal residues are the parent compound and aminomethylphosphonic acid (AMPA) in eggs, milk, and animal tissues.

- 2a. The submitted analytical method is adequate to generate residue data.
- 2b. There is an enforcement method in PAM II for glyphosate.
- 3a. Combined residues of glyphosate and its aminomethylphosphonic acid metabolite in wheat grain and wheat straw will not exceed the proposed tolerance levels of 4 ppm and 85 ppm, respectively, based upon residue data reflecting ground application of 0.75 lb acid equivalent/A at a minimum preharvest interval (PHI) of 7 days.
- 3b. Combined residues of glyphosate and its aminomethylphosphonic acid metabolite in kidney and liver of cattle, goats, hogs, horses, poultry, sheep will not exceed the currently established tolerances.
- 3c. Combined residues of glyphosate and its aminomethylphosphonic acid metabolite are likely to exceed the established tolerance of 0.1 ppm (N) for the cereal grain barley, as a result of the use as proposed herein. The petitioner must submit residue data reflecting the proposed use and a revised Section F proposing tolerances for barley grain and straw as a result of the proposed use. Alternately, the petitioner should submit revised Section B Use Instructions deleting the recommended use on barley.
- 3d. In the absence of the requested residue data as specified in the 2,4-D registration standard, we are unable to draw any conclusions regarding residues of 2,4-D in wheat grain and wheat straw from the proposed use. The application rate for 2,4-D contemplated in the proposed use is roughly comparable to dosage rates of 2,4-D reported in the 2,4-D registration standard.
- 3e. We have previously concluded in our 4/18/85 review of PP3F2809/FAP5H5450 that food additive tolerance is required for residue of glyphosate and its metabolite amino-

methylphosphonic acid in "wheat milling fractions (excluding flour)" at levels 3X the level in the raw agricultural commodity. Thus a food additive tolerance should be proposed for the processed commodity "wheat milling fractions (excluding flour)" at 12 ppm. Food additive tolerance for the wheat milling fraction wheat flour is not required, since residues of glyphosate and its metabolite aminomethylphosphonic acid do not concentrate therein.

4. Based upon the information submitted in the previously reviewed interim report, we will defer further considerations of the stability of glyphosate and aminomethylphosphonic acid until the final report is submitted. We will not withhold our favorable conclusions on this basis at this time.
5. An International Residue Limit Status Sheet (Codex) is attached to our review. The Codex level of 5 ppm for wheat and 100 ppm for straw and fodder (dry) of cereal grains is based upon residues of glyphosate as the parent compound only, while the U.S. tolerance includes residues of the metabolite aminomethylphosphonic acid. While the proposed tolerances of 4 and 85 ppm may be raised to 5 and 100 ppm, respectively, such tolerances still would not be compatible with Codex tolerance expressions, due to the inclusion of the metabolite aminomethylphosphonic acid.
6. The tolerance for 0.1 (N) ppm in CEREAL CROPS established under 40 CFR 180.364(a) will need to be qualified, by the addition of the phrase, "...except wheat..."

### Recommendations

We recommend against the requested action, for the reasons cited in Conclusions 3c (tolerances exceeded for barley) and 3e (wheat milling fraction food additive tolerances required):

Note to PM: The tolerance for 0.1 (N) ppm in CEREAL CROPS established under 40 CFR 180.364(a) will need to be qualified, by the addition of the phrase, "...except wheat..."

### DETAILED CONSIDERATIONS

#### Manufacture and Formulation

Two formulations are proposed for use on wheat. One product, Roundup Herbicide RT Reduced Tillage Shuttle 100, EPA Reg No. 524-308, For Control Of Annual And Perennial Weeds In Reduced Tillage Systems, contains the isopropylamine salt of glyphosate as the active ingredient.

The glyphosate registration standard discusses the manufacture of glyphosate. There is an update of the glyphosate registration standard dated 4/90.

The product labeling for Roundup Herbicide RT Reduced Tillage Shuttle 100, EPA Reg No. 524-308, For Control Of Annual And Perennial Weeds In Reduced Tillage Systems, includes instructions to tank mix 1 - 2 pints of RT with 0.5 - 1 pounds acid equivalent of 2,4-D amine salt plus 0.5 - 1 percent nonionic surfactant.

The other product, Landmaster BW For Suppression Of Emerged Field Bindweed And Control Or Suppression Of Annual Weeds In Fallow And Reduced Tillage Small Grain Systems, EPA Reg. No. 524-351 contains 12.9% of the isopropylamine salt of glyphosate and 20% of the isopropylamine salt of 2,4-D.

The 2,4-D registration standard discusses the manufacture of 2,4-D acid and salts, which see. The application rate for 2,4-D contemplated in the proposed use is roughly comparable to dosage rates of 2,4-D reported in the 2,4-D registration standard.

#### Directions for Use

Directions for use on wheat include: Roundup Herbicide RT Reduced Tillage Shuttle 100, EPA Reg No. 524-308, For Control Of Annual And Perennial Weeds In Reduced Tillage Systems:

##### **PREHARVEST APPLICATIONS**

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on the label prior to the harvest of wheat or barley. Make applications after the hard-dough stage of grain (at or less than 30% grain moisture) and at least 7 days prior to harvest.

Note: Do not apply to wheat or barley grown for seed.

**WEED CONTROL** - For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

**BROADCAST APPLICATIONS** - This product may be applied using either aerial or ground spray equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for instructions for ground and aerial applications. For ground applications with broadcast equipment, apply this product in 3 to 10 gallons of water per acre. For aerial applications apply this product in 3 to 5 gallons of water per acre.

For control of quackgrass or suppression of Canada thistle, apply 1 quart (0.75 lb. acid equivalent) of this product plus 0.5 to 1.0 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

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For suppression of field bindweed, apply 1 to 2 (0.38 - 0.75 lb. acid equivalent) pints of this product plus 0.5 to 1 pound acid equivalent of 2,4-D amine plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Directions for use on wheat include: Landmaster BW For Suppression Of Emerged Field Bindweed And Control Or Suppression Of Annual Weeds In Fallow And Reduced Tillage Small Grain Systems, EPA Reg. No. 524-351.

#### PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on the label prior to the harvest of wheat or barley. Make applications after the hard-dough stage of grain (at or less than 30% grain moisture) and at least 7 days prior to harvest.

Note: Do not apply to wheat or barley grown for seed.

WEED CONTROL - For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

BROADCAST APPLICATIONS - This product may be applied using either aerial or ground spray equipment. See the APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for instructions for ground and aerial applications. For ground applications with broadcast equipment, apply this product in 3 to 10 gallons of water per acre. For aerial applications apply this product in 3 to 5 gallons of water per acre.

For suppression of field bindweed, apply 54 ounces (0.5 lbs a.i or 0.38 lbs glyphosate acid equivalent; 0.65 lbs acid equivalent of 2,4-D) of this product in 3 to 10 gallons of water per acre.

We note the label directions for the proposed use on barley. We further note that the petitioner does not propose tolerances for barley grain or barley straw. Tolerances are established at 0.1 ppm (N) for residues of glyphosate and its metabolite aminomethylphosphonic acid on grain crops (of which barley and wheat are members) as a result of the application of the isopropylamine salt to the growing crop.

#### Nature of the Residue

The nature of the glyphosate residue in plants was described in the Glyphosate Registration Standard. The residues of concern in plants are glyphosate and its aminomethylphosphonic acid metabolite. The nature of the residue is adequately understood.

In animals, the nature of the residue is adequately understood, according to the 4/28/90 update to the glyphosate registration standard; the terminal residues are the parent compound and aminomethylphosphonic acid (AMPA) in eggs, milk, and animal tissues.

The nature of the residue of 2,4-D in plants and animals has been previously considered under the 2,4-D registration standard.

Analytical Method MRID41484301.

The analytical method for determining glyphosate and aminomethylphosphonic acid is called "Analytical Residue Method for N-Phosphonomethyl Glycine and Aminomethylphosphonic Acid in Raw Agricultural Commodities."

This method appears to be the same as the method considered in PP6F3380: "HPLC-Fluorometric Method for the Analysis of Glyphosate and Aminomethylphosphonic Acid in Raw Agricultural Commodities and Water." The analytical method has been considered in PP6F3380 (J. Stokes, July 7, 1987), and PP8F3631 (C. Deyrup, July 5, 1988). The method is considered adequate for the purposes of obtaining residue data. In brief, glyphosate and its metabolite aminomethylphosphonic acid are extracted and isolated through Chelex 100 resin; glyphosate and aminomethylphosphonic acid are eluted and the anion exchanged; quantitation by HPLC with o-phthalaldehyde post-column reactor and a fluorescence detector.

The method is claimed to be sensitive to 0.05 ppm. Recovery values for glyphosate and aminomethylphosphonic acid ranged from 88 to 102% in fortified samples (0.05 to 1.0 ppm). Blind fortified samples in a "roundrobin" study showed recovery of 89% to 98%. Control values were all <0.05 ppm except one "Contaminated" sample showed 0.16 ppm of glyphosate.

Recovery values for glyphosate and its aminomethylphosphonic acid metabolite in wheat grain at fortification levels of 10.5 to 60 ppm were 91% and 87% respectively; and in wheat straw fortified at 0.05 to 80 ppm were 88 and 94% respectively.

The analytical method for isopropylamine salt of 2,4-D has been previously considered under the registration standard for 2,4-D and is not germane to our considerations of tolerances for residues of glyphosate.

The questions regarding the applicability of FDA Multiresidue Methods to the analysis of glyphosate have been resolved (see F. D. Griffith, 7/13/90, PP8F3673).

Storage Stability

The glyphosate registration standard included deficiencies in regard to the storage stability of residues of glyphosate and aminomethylphosphonic acid in various commodities. The requested storage stability data (interim report: MSL-8826, submitted 4/2/90, R.D. 977, Volume 3.) was reviewed in PP8F3672/PP8H5562 (S. Willett, 9/5/90). In this review, it is reported that endogenous residues of glyphosate and its metabolite aminomethylphosphonic acid are stable in several commodities, including corn grain, soybean forage, sorghum stover, clover, tomatoes, alfalfa seed and potatoes for up to 5 years. Exogenous residues of glyphosate were stable for up to 18 months but its metabolite aminomethylphosphonic acid declined 35-40% over the same interval. We will defer further considerations of the stability of glyphosate and aminomethylphosphonic acid until the final report is submitted. We will

not withhold our favorable conclusions on this basis at this time because residues of aminomethylphosphonic acid are generally less than 10% of the total residue and because residue samples were analyzed within a year of storage.

Residue Data MRID41484301.

Wheat

Residue trials were conducted at 15 sites in 13 states, as follows: CA, CO, GA, IL, KS, MN, MT, ND (2), NE, OH, OK, SD, and TX (2). These states represent 65% of total US wheat production and about 100% of the durum wheat production. These residue data are geographically adequate.

| <u>Sample</u> | <u>Control sample residue values.</u> |                |                         |
|---------------|---------------------------------------|----------------|-------------------------|
|               | <u>Analyte</u>                        | <u>Range</u>   | <u>No. &lt;0.05 ppm</u> |
| Grain         | Glyphosate                            | <0.05 - 0.317  | 8/15                    |
| Grain         | AMPA                                  | <0.06 - <0.140 | 11/15                   |
| Straw         | Glyphosate                            | <0.05 - 0.389  | 12/15                   |
| Straw         | AMPA                                  | <0.05 - <0.083 | 14/15                   |

Residue values are corrected for recovery but are not corrected for background check values.

Wheat grain:

Maximum glyphosate per se residue in wheat grain from 0.38 lbs.ai./A (that is, the lower recommended dosage rate) at 3 or 7 DAT {the petitioner's term for Days After Treatment and equivalent to CBTS term preharvest interval} was found at New Holland, Ohio at 1.02 and 2.54 ppm. All other locations showed from <0.05 to about 0.46 ppm. Residues of aminomethylphosphonic acid in these same locations were all <0.05 ppm, except the New Holland, Ohio sample showed 0.087 ppm of aminomethylphosphonic acid.

Glyphosate per se residue in wheat grain from 0.75 lbs.ai./A (that is, the higher recommended dosage rate) at 3 or 7 days DAT ranged from <0.05 (3 samples) to 2.95 ppm. Again the higher residues were found in the Ohio location. All other locations showed <1.0 ppm of glyphosate at both 3 and 7 days DAT. Residues of aminomethylphosphonic acid were <0.05 to 0.169 ppm at all locations.

Based upon this data, we can conclude that combined residues of glyphosate and aminomethylphosphonic acid in wheat grain resulting from the use as proposed will not exceed the proposed 4 ppm tolerance.

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Wheat straw:

Glyphosate per se residue in wheat straw from 0.38 lbs.ai./A at 3 or 7 days PHI was found at Wapeton, ND at 60.5 ppm at 3 DAT and Altus, OK at 35.7 ppm at 7 DAT. Residues of aminomethylphosphonic acid in these same locations were all <1.25 ppm, with the highest residue at Altus, OK.

Glyphosate per se residue in wheat straw from 0.75 lbs.ai./A at 3 or 7 days DAT ranged from 4.5 to 80.70 ppm at 3 DAT, and from 0.675 to 69.1 ppm at 7-11 DAT, both at Tolono, IL. Residues of aminomethylphosphonic acid were <0.05 to 2.63 ppm at either 3 or 7 DAT at all locations, with the highest aminomethylphosphonic acid residue found at Altus, OK.

Based upon this data, we can conclude that combined residues of glyphosate and aminomethylphosphonic acid in wheat straw will not exceed the proposed 85 ppm tolerance.

Barley:

No residue data are submitted in support of the proposed use on barley. In the absence of adequate residue data reflecting the proposed use on barley, we are unable to draw any conclusions about the magnitude of the residue in barley grain and barley straw. Based upon the registered use of glyphosate as a spot treatment in small grains and the attendant 0.1 ppm (N) tolerance, we would expect residues of glyphosate and its aminomethylphosphonic acid metabolite would exceed the established 0.1 ppm level.

Wheat Forage And Fodder:

Since the label directs use after the 'hard-dough' stage of growth, it is unlikely that wheat forage or fodder would be available for animal consumption, and therefore, residue data are not required for these commodities.

Wheat grain milling fractions:

We have previously concluded in our 4/18/85 review of PP3F2809/FAP5h5450 that food additive tolerance is required for residue of glyphosate and its metabolite aminomethylphosphonic acid in "wheat milling fractions (excluding flour)" at levels 3X the level in the raw agricultural commodity. Thus a food additive tolerance should be proposed for the processed commodity "wheat milling fractions (excluding flour)" at 12 ppm. A food additive tolerance for the wheat milling fraction wheat flour is not required, since residues of glyphosate and its metabolite aminomethylphosphonic acid do not concentrate therein.

For purposes of completeness, we include herein portions of our previous review regarding wheat processing fractions.

| Glyphosate Residues In Wheat Grain Fractionated<br>Into Bran, Break Flour, Reduction Flour, And Shorts. |                                 |      |       |      |                               |      |      |      |
|---|---------------------------------|------|-------|------|-------------------------------|------|------|------|
| Location<br>Rate and PHI  | Saltillo, TN<br>0.38 #/A 7 days |      |       |      | Mayview, MO<br>3.0 #/A 7 days |      |      |      |
|   | Glyphosate                      | CF   | AMPA  | CF   | Glyphosate                    | CF   | AMPA | CF   |
| Grain (before<br>fractionation)*  | 0.71                            | --   | <0.05 | --   | 78.0                          | --   | 2.07 | --   |
| Bran  | 1.66                            | 2.34 | 0.07  | <1.4 | 121.0                         | 1.55 | 2.58 | 1.25 |
| Break Flour   | 0.14                            | 0.20 | <0.05 | <1.0 | 22.8                          | 0.29 | 1.77 | 0.86 |
| Reduction Flour   | 0.12                            | 0.17 | <0.05 | <1.0 | 22.8                          | 0.29 | 1.68 | 0.81 |
| Shorts  | 1.20                            | 1.69 | <0.05 | <1.0 | 94.7                          | 1.21 | 2.51 | 1.21 |

\* PPM after drying to milling condition  
CF = Concentration factor.

### Meat, Milk, Poultry, and Eggs

The animal feed items of concern herein are wheat grain, wheat straw/forage/fodder, and milled byproducts. Wheat grain may constitute up to 50% of the cattle diet, 70% of the poultry diet, and 90 percent of the swine diet. Milled byproducts may constitute 25% of the cattle diet, and 10% of poultry and swine diets. Wheat forage, straw and hay are used only in cattle diets.

Wheat Usage in Livestock Diets

| Livestock          | Grain | Forage | Hay | Straw | Milled byproducts |
|--------------------|-------|--------|-----|-------|-------------------|
| Beef Cattle        | 50    | 25     | 25  | 10    | 25                |
| Dairy cattle       | 50    | 70     | 60  | 10    | 25                |
| Poultry (turkey)   | 70    | --     | --  | --    | 10                |
| Poultry (hens)     | 50    | --     | --  | --    | 5                 |
| Swine Finishing    | 90    | --     | --  | --    | 5                 |
| Swine Boars & Sows | 80    | --     | --  | --    | 10                |

The glyphosate registration standard discusses the animal dietary burden. The dietary burden from consumption of wheat grain containing 4 ppm would be 2 ppm in cattle, 2 - 2.8 ppm in poultry, and 3.2 - 3.3 ppm in swine. The dietary burden from the consumption of wheat straw containing 85 ppm would be 85 ppm x 10% diet = 8.5 ppm in cattle. Such dietary residue burdens are considerably less than the 200 ppm tolerance levels on grass contemplated in the previously submitted and reviewed animal feeding studies. (See glyphosate registration standard and its update of 4/90).

Thus, we conclude that the established tolerances for residues of glyphosate (N-(phosphonomethyl)glycine) and its metabolite aminomethylphosphonic acid as established in 40 CFR 180.364(b) at 0.5 ppm in kidney and liver of cattle, goats, hogs, horses, poultry, sheep are appropriate.

Other ConsiderationsInternational Residue Limits

An International Residue Limit Status Sheet (Codex) is attached to our review. The Codex level of 5 ppm for wheat and 100 ppm for straw and fodder (dry) of cereal grains is based upon residues of glyphosate as the parent compound only, while the U.S. tolerance includes residues of the metabolite aminomethylphosphonic acid. While the proposed tolerances of 4 and 85 ppm may be raised to 5 and 100 ppm, respectively, such tolerances still would not be compatible with Codex tolerance expressions, due to the inclusion of the metabolite aminomethylphosphonic acid.

Attachment: IRLS (Codex)

cc: PM15, Cook, DRES, PPOF3865 ,RF,Circ(7),PIB/FOD(Furlow)  
H7509C:CBTS:RCook:rc:x77484:Rm810H:1/22/91  
RDI:R.S.Quick:1/25/91:R.Loranger:1/28/91

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*J. [unclear]  
12/24/90*

| <u>INTERNATIONAL RESIDUE LIMIT STATUS</u>                    |                      |   |                         |
|--|----------------------|---|-------------------------|
| Chemical: Glyphosate   |                      |   |                         |
| Codex No: 158  |                      |   |                         |
| <u>Codex Status:</u>   |                      | <u>Proposed U. S. Tolerance</u>                                   |                         |
| <input type="checkbox"/> No Codex Proposal Step 6 or Above   |                      | Petition No: PPOF3865   |                         |
| Residue (if Step 8): <i>Glyphosate per sec</i>               |                      | CB Reviewer: R. W. Cook   |                         |
| Residue (if Step 8): <i>↑</i>                                |                      | Residue Glyphosate and its metabolite aminomethyl-phosphonic acid |                         |
| <u>Crop(s)</u>   | <u>Limit (mg/kg)</u> | <u>Crop(s)</u>  | <u>Limit (mg/kg)</u>    |
| <i>wheat<br/>straw and fodder<br/>(dry) of cereal grains</i> | <i>5<br/>100</i>     | <i>Wheat Grain<br/>Wheat Straw</i>                                | <i>4 ppm<br/>85 ppm</i> |
| <u>Canadian limits:</u>                                      |                      | <u>Mexican Limits</u>   |                         |
| <input type="checkbox"/> No Canadian limit                   |                      | <input checked="" type="checkbox"/> No Mexican limit              |                         |
| Residue <i>glyphosate</i>                                    |                      | Residue   |                         |
| <u>Crop(s)</u>   | <u>Limit (mg/kg)</u> | <u>Crop(s)</u>  | <u>Limit (mg/kg)</u>    |
| <i>all crops</i>   | <i>0.1*</i>          |   |                         |
| Notes: * Negligible residue limit                            |                      | Page <u>1</u> of <u>1</u> .<br>Form Revised 9/90                  |                         |

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