FOOD SAFETY CONSULTANT SERVICES
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February 4, 2000

Subject: Comments on "Action plan to eliminate Salmonella Enteritidis (SE) illness due to eggs"

To: The President's Council on Food Safety

I have reviewed the "Action Plan to Eliminate Salmonella Enteritidis (SE) Illness Due to Eggs" issued by the council on December 13, 1999. I would like to make some comments for the record. These comments are based on my experience as the Director of the USDA SE Control Program (1990-1994) and subsequently as a food safety consultant.

1. Generally, the Action Plan covers all major aspects of the problem and is well formulated, concise and well presented. There is little to add to the goals and objectives listed. Nevertheless, I would propose that the primary responsibility – and funding – for the program be returned to the USDA-Animal and Plant Health Inspection Services-Veterinary Services (USDA-APHIS-VS) rather than remain with FDA. The USDA-APHIS-VS was responsible for SE control from January 1990 to mid-1995. The USDA-APHIS-VS presently is the only Federal Agency with the field force capable of directly interacting with egg producers. It also administers the National Poultry Improvement Plan program for SE in all poultry breeding flocks in the US. The USDA-APHIS-VS has a cadre of some 30 Veterinary Medical Officers who are trained in poultry health and has offered to provide this expertise to the monitoring of egg quality assurance programs.

   The USDA-APHIS-VS also provides laboratory services for SE at the National Veterinary Services Laboratory (NVSL, Ames, Iowa) and is now involved in a certification program for other laboratories engaged in Salmonella diagnostics. The

USDA-APHIS-VS National Animal Health Monitoring System (Fort Collins, Colorado) has just completed a nation-wide survey of the egg layer industry. Finally, the USDA-APHIS-VS is the only Agency with the personnel and experience to conduct suitable epidemiologic investigations and tracebacks from human SE outbreaks in which eggs are implicated as the most probable food vehicle.

2. Although the FDA has statutory responsibility for shell eggs, it granted this authority to USDA from 1990-1995. Perhaps such authority should be legislatively granted to USDA, thereby adding eggs to meat and poultry as USDA responsibilities.

3. A number of different USDA agencies are concerned with SE (e.g., FSIS, AMS, APHIS, ARS). Their efforts would benefit from the appointment of a high-level SE Program Coordinator. This position – with appropriate authority and sufficient staff – could be charged with integrating program operations and avoiding duplication of efforts.

4. In addition to the national program operated by the United Egg Producers (the 5-Star Program), there are currently egg quality assurance (QA) programs in some 13 states, and more are on the way. The Action Plan proposes that there be mandatory national standards for these programs to provide a "level playing field". I believe that the egg industry is not yet ready for such an initiative and, in view of the rapidly declining SE rates, there is some question whether it is necessary at this time. It would take some years before all producers could comply with compulsory standards and their enforcement in the near future would force many out of business. Nevertheless, standards for a model QA program for eggs should be formulated and should be combined with a USDA Seal of Approval to provide some marketing advantage for participants. By itself, this market driven approach would encourage most producers to participate on a voluntary basis. As voluntary participation increases, a transition to a mandatory program might be feasible.

5. A crucial element in an acceptable QA program for eggs is the testing of layer flocks for SE and the diversion of eggs from test-positive flocks to pasteurization. Some 30% of all eggs produced in the US are now pasteurized for use as egg products. Many of the largest egg producers have their own in-line operations for routinely pasteurizing some of the eggs they produce.

   For egg producers who market only shell eggs in cartons, the detection of SE in their flocks – and the required diversion of eggs from these flocks – could mean financial ruin. Because SE does not ordinarily decrease production or increase morbidity/mortality in a layer flock, the control of SE is primarily to benefit public health. Consequently, the provision of financial assistance to producers who are forced to divert eggs from SE-positive flocks should be considered. This assistance

could be provided through the USDA-Agricultural Marketing Services, which already purchases quantities of egg products for various programs.

6. The responsibility for "investigating SE outbreaks, testing flocks, diverting eggs from SE-positive flocks, collecting flock data, and promoting better quality control" should be with the USDA-APHIS-VS. The Action Plan proposes that FDA carry out these functions. Yet, the FDA is not prepared to accomplish these tasks, and likely will cede responsibility for carrying out these tasks to the States.

7. The USDA should provide training in food safety to a large number of its field personnel. In particular, Veterinary Medical Officers (VMOs) should be targeted for this training. Upon completion of this training, the VMOs would be assigned to Departments of Health in various States to assist in the investigation of food-borne illnesses. State Health Departments are chronically in need of personnel and resources, and would welcome such assistance. Because the sources of practically all food-borne illnesses are related to various foods of animal origin, there is ample justification for the assignment of USDA VMOs to determine the sources of these pathogens. Furthermore, these professionals are ideally suited to help producers and processors prevent the transmission of food-borne pathogens to consumers.

8. Funding for research on the major food-borne pathogens should be increased. A small group of USDA specialists should be assigned to review and coordinate food safety research, award grants, and monitor progress and results.

9. Coordination between the NVSL, the Centers for Disease Control, and FDA laboratories should be increased. The NVSL should <u>not</u> charge for their laboratory diagnostic services when these services relate to pathogens of public health importance! The current practice of charging the public (and government) for Salmonella services substantially reduces the value of national statistics generated by the NVSL. In contrast, publicly funded laboratory services encourage unbiased reporting on the occurrence and distribution of Salmonella – including SE.

10. An SE Control Program Newsletter should be issued periodically to everyone directly concerned with SE in the US. From 1990-1995, I produced such a newsletter and it was widely referenced and appreciated.

11. To be inclusive, a number of other measures for egg safety are recommended.

    - The USDA regulation for the refrigeration of eggs should be aggressively enforced.
    - The use of pasteurized egg products should be made mandatory in certain institutions (e.g., nursing homes, hospitals, and chronic-care facilities).
    - The development and use of in-shell pasteurization should be Federally supported through grants or other subsidies.

- All egg cartons and cases should indicate the source of the eggs, and cartons should include a 21-day sell-by date, as well as a legend stating the need for proper refrigeration and cooking of eggs.
- The AMS egg-grading program should be available to all egg producers without cost, and should include a HACCP program for all egg processing facilities.
- The NPIP SE surveillance program for breeding flocks should continue to be actively supported by the USDA.
- The return, repackaging, and resale of outdated eggs should be prohibited.

I believe that the strategies for reducing human illnesses caused by SE in eggs are available. These strategies merit aggressive, action-oriented leadership to accomplish a reduction in human illnesses to negligible levels.

For your information, I am enclosing my comments in response to the Advance Notice for Public Rulemaking on "SE in Eggs", published in the Federal Register on May 18, 1998.

Sincerely,

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July 9, 1998

FSIS Docket Clerk
Docket No. 96-035A
Room 102
Cotton Annex Building
300 12th Street S.W.
Washington, D.C. 20250-3700

Dear Sirs:

This is in response to the request for comments in regard to the "Advance Notice of Proposed Rule Making" (ANPR), which was published in the Federal Register (Vol. 63. No. 96) on Tuesday, May 19, 1998, entitled "Salmonella Enteritidis in Eggs." My remarks are based on my experience as Director of the APHIS Salmonella Enteritidis Control Program from July, 1990 to November, 1994, and subsequent service as a Food Safety Consultant to the American Egg Board.

In order to reduce the food safety risks associated with shell eggs, I would propose the following:

1. The USDA should:

    a. Promulgate standards for egg quality assurance (QA) programs, which should include the best features of the QA programs in Pennsylvania and California, and should require microbiological testing and diversion of eggs from SE-positive flocks to pasteurization.

    b. Provide assistance, training and subsidies to agencies or groups wishing to start QA programs.

    c. Establish a "Seal of Approval" for acceptable QA programs.

    d. Provide services for monitoring and certification of QA programs, if they cannot be provided by State agencies.

    e. Establish a program to subsidize producers with SE-positive flocks who find it necessary to divert their eggs to pasteurization.

f. Provide laboratory services for QA programs, when necessary, including free Salmonella serotyping, the use of phage typing, and, where appropriate, the use of pulsed field gel electrophoresis.

g. Establish and operate, through the NVSL, a certification program for laboratories providing Salmonella diagnostic services.

h. Publish and distribute guidelines (Best Management Practices) for:

1. Biosecurity
2. Rodent and Pest Control
3. Cleaning and Disinfection
4. Molting
5. Egg Washing
6. Manure Management
7. Dead Bird Disposal
8. Spent Hen Disposal
9. Collection and Shipment of Samples for Microbiological Testing
10. Packing, Storage and Cooling of Eggs
11. Transport of Eggs to Market

i. Continue to support the NPIP program, particularly the SE monitoring program for breeding flocks.

j. Require stricter enforcement of sanitation standards and pasteurization practices at egg pasteurization plants.

k. Require "designated" tanker trucks, which should be properly sanitized, for the shipment of liquid eggs.

l. Promote the utilization of effective SE vaccines for pullets destined for egg layer flocks.

m. Continue to conduct spent hen surveys and surveys of liquid eggs for SE.

n. Carry on a nationwide surveillance program for SE. However, SE in layer flocks should not be treated as a reportable disease, with regulatory penalty, since this discourages testing for SE and the use of the laboratory results to divert eggs from SE-positive flocks to pasteurization voluntarily.

o. Carry out a comprehensive survey of the egg layer industry, now being planned by the USDA National Animal Health Monitoring System in Ft. Collins, as soon as possible.

p. Publish periodically a Newsletter, for persons and agencies concerned with egg safety, to report on the progress of the SE Control Program.

2. The USDA and the FDA, jointly, should:

a. Require, for the interstate shipment of eggs:

1. A 21-day sell-by date on egg cartons.
2. Indication on egg cases and cartons as to the source of the eggs.
3. Recommendations on egg cases and cartons for the proper handling of eggs.
4. Prohibition of resale of out-dated eggs as shell eggs, with their diversion to pasteurization plants.
5. Prohibition of resale of eggs from SE-positive flocks destined for pasteurization, as shell eggs.
6. Refrigeration of eggs after lay and processing so that the internal temperature will approximate 45°F or lower in 3-4 days, with maintenance at that temperature during storage, shipment and sale in markets.

b. Actively promote and support research on the prevention and control of SE.

c. Actively promote and support extensive educational and publicity programs for the improvement of food-handling practices.

d. Prohibit the export of eggs from known SE-positive flocks.

e. Promote the use of pasteurized eggs for recipes where raw or undercooked eggs are called for.

f. Promote the development of in-shell pasteurization procedures.

3. The FDA should:

a. Require the use of pasteurized eggs in Federal facilities such as prisons, hospitals, chronic care facilities and nursing homes, and should recommend their use in similar facilities not under Federal jurisdiction.

b. Limit tracebacks from human SE outbreaks to instances where:

1. There is sufficient epidemiological evidence that eggs were involved.
2. Cross-contamination or contamination by food handlers was not involved.
3. The eggs trace leads to a single flock or premises.

   Eggs from SE-positive flocks detected as a result of a traceback should be diverted to pasteurization. Tracebacks should be used primarily to evaluate the operation of QA programs.

4. The following comments are specific references to the ANPR:

   1. Salmonella typhimurium and Salmonella heidelberg are rarely found in the internal contents of shell eggs (pg. 27504).

   2. A recent USDA risk assessment of SE in shell eggs estimates that SE contamination occurs in about 1 egg in 20,000, not 1 in 10,000, and that that frequency may result in 2.3 million SE-contaminated eggs annually, not 4.5 million (pg. 27505).

   3. Because of the bacteriostatic action of egg albumen, where pracically all SE organisms are deposited before the affected egg is laid, it should not be necessary to rapidly chill eggs after lay, using carbon dioxide (pg. 27507).

   4. Repackaging and rewashing of out-dated eggs should be prohibited. These eggs should be sent to "breaker" plants for pasteurization (pg. 27507).

   5. All raw foods may contain harmful bacteria and consumers should be aware of the need to handle such foods properly. If shell egg cartons are to bear such a warning, then other raw foods should be marked in the same manner (pg. 27508).

   6. Safe handling statements should be required on all egg cartons and egg cases (pg. 27509).

   7. Egg producers should be enouraged to use HACCP-like QA programs, combining the best features of the Pennsylvania and the California programs, including microbiological testing and diversion of eggs from SE-positive flocks to pasteurization. These programs should be voluntary, not mandatory and producers participating in these programs should be able to benefit commercially through the use of a USDA Seal of Approval. This would encourage the great majority of egg producers to take part in approved QA programs. (pg. 27509).

8. The use of a mandatory sell-by date, which would vary depending on the temperature at which eggs were maintained, would be very difficult to enforce, and, in any case, would not be necessary if processors were given 3-4 days to bring the temperature of fresh shell eggs down to 45°F (pg. 27510). [1]

9. The education and training of food handlers, and particularly food-service managers, is crucial for effective SE-prevention. Practically all SE cases and outbreaks can be prevented by proper food-handling practices (pg. 27510).

10. Since at the present time it is not possible to guarantee that all raw shell eggs will be pathogen-free with the measures currently available (pg. 27506), any recommended preventive and control procedures for SE should remain voluntary (pg. 27510). Consumers would still have the choice of purchasing pasteurized eggs, or eggs coming from approved QA programs. Finally, it appears to me that if the risk of being exposed to SE is estimated at only one egg in 20,000, there is not enough justification to require that all eggs be pasteurized (pg. 27510).

Sincerely,

John Mason

John Mason

Enclosures: Pamphlets summarizing the Pennsylvania and California QA Programs.

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[1] ...on average, eggs laid at 99°F will achieve internal temperatures of 45° or less before the inherent resistance to yolk membrane breakdown is exhausted when the eggs are maintained at an ambient temperature of 45°F.

...there is an inherent delay - a time before SE growth can begin - of approximately 11 days at an internal temperature of 80°F, or 30 days at an internal temperature of 60°F. (from the Final Report - Salmonella Enteritidis Risk Assessment, Page 26).

Statement of Purpose

The Pennsylvania Egg Quality Assurance Program (PEQAP) is a voluntary industry program intended to minimize *Salmonella enteritidis* (SE) contamination of chicken (shell) eggs. Although this program does not guarantee shell eggs to be free of SE contamination the program does assure commitment of the producer and processor to implementation of those management and monitoring practices most likely to prevent SE contamination. Basic preventive measures include placement of SE clean chicks, intensive rodent control, cleaning and disinfecting between flocks, and environmental monitoring of pullet and layer houses with continuous testing of eggs from any environmentally positive houses. Positive eggs are diverted for pasteurization. Eggs must be kept refrigerated. The Pennsylvania Department of Agriculture provides oversight, technical, administrative, and financial support to this program. The Pennsylvania Department of Health provides technical advice regarding public health implications. PEQAP participants are assuring the public that they are taking every reasonable precaution to assure the safety of shell eggs.

SPONSORED BY:
Pennsylvania Poultry Federation

SUPPORTED BY:
Pennsylvania Department of Agriculture
Penn State University
Extension of Pennsylvania
Pennsylvania Animal Diagnostic Laboratory System
Pennsylvania Department of Health

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PEQAP

Pennsylvania Egg Quality

TESTED QUALITY
PRODUCED UNDER THE HIGHEST STANDARDS OF QUALITY & SAFETY

PEQAP

MONITORED BY:
Pennsylvania Department of Agriculture

Revised April 1997

Program Requirements

PULLETS

- Purchase [illegible] from [illegible] Sanitation Monitored *Salmonella* [illegible]
- Obtain samples [illegible] at the [illegible]. Sam[illegible] submit to a [illegible] for Salmonella enteritidis (SE) culture.
- Sample and culture [illegible] 15 weeks of age. A [illegible] consist of two samples taken from the [illegible] each row of cages.
- Maintain a [illegible] and monitoring program.
- Houses with [illegible] samples must be cleaned and disinfected before new chicks can be placed.

LAYERS

- Purchase and place pullets from an SE monitored flock. Pullets from an unknown or SE positive status house or flock will require that the manure be sampled and cultured 7 to 14 days after placement.
- Sample and culture manure at 2[illegible] to 3[illegible] weeks of age and again at 4[illegible] to 4[illegible] weeks of age. A culture of the manure during any test will consist of two samples taken from the manure beneath each row of cages.
- In molted flocks test manure at five to seven weeks following return to feed and follow egg testing procedures if positive.
- Houses with positive manure samples must be thoroughly cleaned and disinfected between flocks.

EGGS

- Houses with negative manure samples will not be required to test eggs.
- Houses with positive manure samples must test 48 nest run eggs [illegible] of all available blood spot eggs plus additional nest run eggs to total 48 eggs every 2 weeks for 4 lots of samples. These eggs will be cultured in pools of 24. If the 4 lots of eggs are negative, a sample of 48 eggs (nest run and blood spot) must be sampled each month for the life of the flock.
- If any egg pools are positive, then all eggs must be diverted for pasteurization or hard cooking. To be able to resume sale of eggs as table eggs, 1,000 eggs must be tested in pools of 20 every 2 weeks [illegible] of samples are test negative. Alternatively, if less than 50[illegible] of the environmental [illegible] and no more than one egg pool were positive, 1,000 eggs may be tested at one time. Following return to the table egg market, 48 eggs (nest run and blood spot) must be sampled each month for the life of the flock.
- Egg testing will eliminate the need for further environmental testing.
- As additional experience is gained, environmental and egg testing requirements may be modified.

FORCE MOLTED FLOCKS

- Test manure at five to seven weeks following return to feed and follow egg testing procedures if positive.

RODENT CONTROL

- A defined rodent control and record monitoring program must be maintained at all times.

BIO-SECURITY

- All participants must maintain an acceptable biosecurity program.

REFRIGERATION

- Eggs must be kept under refrigeration as specified in the Pennsylvania law.

Processing Plant

- Processing plants packing eggs bearing the PEQAP "Tested Quality" Seal must meet all applicable USDA, Pennsylvania Department of Agriculture, and PEQAP program requirements. These address plant and employee sanitation, refrigeration, egg washing and sanitation, water testing, packing materials (carton [illegible]) and records.

Participating producers and processors are:

- demonstrating their [illegible] of food safety
- producing a quality egg which helps to assure consumer confidence in eggs.
- addressing the demands of buyers for eggs produced in a food safety program
- reducing potential foodborne illness liability claims
- may have insurance premiums reduced.

What Regulatory Officials Say

In a 15 member Review Team Report by the Food and Drug Administration, Centers for Disease Control and Prevention and USDA dated January 18, 1997 it was stated: "PEQAP can serve as a prototype for the egg industry in the development of egg quality assurance programs and the industry should adopt quality assurance programs based on interventions developed in the Pennsylvania Pilot Project and used in the Pennsylvania Egg Quality Assurance Program (PEQAP)."

13. Refrigerate eggs according to applicable federal, state or local laws.
14. Label egg cartons and cases with a "Keep Refrigerated" descriptor to educate consumers about perishability.
15. Label egg cartons and loose pack eggs with a Julian pack date to assist with product rotation. An optional "sell by" date may be used at the discretion of the packer as long as it does not exceed 30 days from date of pack.
16. Label cartons and cases with plant of origin number, and if possible, with a flock identification number.
17. Plastic egg flats should be washed and sanitized after each use or returned to the originating farm to avoid cross contamination. Fiber egg flats cannot be sanitized. They must be returned to the farm of origin.
18. Egg cartons and soiled fiber flats should not be reused.
19. Retail returns shall not be reprocessed for retail shell egg sales.
20. Label eggs with a quality assurance seal only if produced in California by producers participating in the California Egg Quality Assurance Plan.

CEQABRV10 Revised 12/21/95

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CALIFORNIA EGG QUALITY ASSURANCE PLAN

AN ANIMAL PRODUCTION FOOD SAFETY PROGRAM

DEVELOPED BY THE CALIFORNIA EGG INDUSTRY IN COOPERATION WITH: CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE; U.S. DEPARTMENT OF AGRICULTURE; U.C. COOPERATIVE EXTENSION SERVICE; CALIFORNIA VETERINARY DIAGNOSTIC LABORATORY SYSTEM; CALIFORNIA DEPARTMENT OF HEALTH SERVICES; U.S. FOOD AND DRUG ADMINISTRATION

CALIFORNIA EGG QUALITY ASSURANCE PLAN

The California Egg Quality Assurance Plan is a producer oriented animal production food safety program designed to ensure the highest quality and safety of eggs. The program contains twenty core components which form the basis of a Hazard Analysis Critical Control Points (HACCP) plan. Training, record keeping and research are integral components in documenting the success of the plan.

Each participant will design an appropriate monitoring plan applicable to their specific operation. Farm and processing facilities will be periodically reviewed by California Department of Food and Agriculture veterinarians to ensure compliance with the program components.

CORE COMPONENTS

ADMINISTRATIVE

1. Develop a farm/premises flock egg quality assurance plan.
2. Designate an employee or employees as the official quality control supervisor(s) for in-house operations and for follow-up training.

PRODUCTION

3. Purchase chicks and pullets from hatcheries participating in the National Poultry Improvement Plan (NPIP), "U.S. Salmonella Enteritidis Monitored Program" or equivalent state plan. Chicks should be delivered with a certifying letter. Started pullets must be obtained from sources with an acceptable salmonella prevention and control program.
4. Chicks and pullets should always be transported in coops and trucks that are decontaminated between flocks.
5. Obtain feed from mills that follow accepted feed industry Good Manufacturing Practices and the Recommended Salmonella Control for Processors of Livestock and Poultry Feeds, 1988, by the American Feed Industry Association (AFIA) or an equivalent program.
6. Use animal protein ingredients originating from rendering plants participating in the Animal Protein Producers Industry (APPI) Salmonella Reduction Education Program or equivalent.
7. If used, medications, feed additives and pesticides must be administered according to approved label directions.
8. Maintain an effective flock health program to include vaccinations, monitoring and periodic necropsy of mortality or cull birds.
9. Maintain a farm rodent monitoring and reduction program.
10. Pullet and layer buildings will be cleaned and disinfected before restocking. Third-party visual inspection of cleaning and disinfection is required. The inspection must be done by a certified quality control employee designated by the owner, or by a certified independent professional.
11. The farm will utilize a biosecurity plan and train employees on proper procedures to execute the program. Document employee training and comprehension annually.

PROCESSING

12. Follow plant operating guidelines:
    a) Facilities and equipment must be kept clean and in good repair and shall be completely washed at the end of each day's operation.
    b) Lighting should be adequate to properly identify egg defects in the candling booth and the processing area.
    c) Potable water with less than 2 ppm of iron shall be used.
    d) Wash water shall be maintained at 90°F or higher and at least 20°F higher than the temperature of the eggs to be washed.
    e) A USDA approved cleaning compound shall be used in the wash water.
    f) Wash water shall be added continuously and replaced every four hours.
    g) Washed eggs shall be spray rinsed with warm water and a USDA approved sanitizer.
    h) Follow USDA guidelines if eggs are oiled.

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March 23, 2000

To: USDA/FSIS Hearing Clerk
FDA/Dockets Management Branch

The following is in regard to a Notice in the Federal Register of March 21, 2000 (Dockets No. 98-045N3 and No. 00N-0504) entitled "Egg Safety Action Plan".

I am forwarding comments previously submitted on the Action Plan and on an ANPR entitled "SE in Eggs".

In response to questions posed in the Notice that were not discussed in my previous comments:

1. "Negative feed" - poultry feed has not been shown to be a major risk factor for SE. It would be difficult to make this a mandatory requirement for all egg producers, and would not be very productive. More reasonable would be a HACCP program for feed manufacturers and processors, similar to one used in Sweden.

2. A "flock health monitoring program" is commendable but would also be difficult to enforce or justify, since SE produces hardly any morbidity or mortality in layer flocks.

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3. "Environmental testing" is now the most appropriate verification procedure, but with more investigation egg yolk antibody testing or the testing of egg contents with PCR might be able to replace it. The protocol for environmental testing used in the Pennsylvania QA program is recommended, as well as the steps to take if the flock is SE-positive

4. SE vaccines have been used widely, but the only efforts made so far to correlate their use with a reduction in SE in eggs were in the SE Pilot Project and QA Program in Pennsylvania, where some reduction was seen, but where not enough flocks were involved under controlled conditions to provide a definitive answer.

5. Eggs from an SE-positive flock diverted to pasteurization as the result of a trace back investigation, or through the operation of a QA program, should be sent to a breaker plant under seal, and not permitted to be sold as table eggs. Enforcement should be a responsibility of AMS personnel already in the plant. These eggs should not be handled differently, since routine processing requirements for liquid egg pasteurization should be sufficient for eggs from any source.

6. Much of the information on the shell egg industry requested in the Notice, for FDA's economics team, has already been collected during a recent NAHMS survey (layers '99) and is being released as the analyses of the results become available. More information could be collected but it is unlikely that the request in the Notice will generate enough responses to make the replies representative and reliable. Most egg producers are reluctant to provide much of the information requested without some assurance of confidentiality, as was provided in the NAHMS survey.

John Mason