

# Measurement of Inherent Risk in Processed Meat and Poultry Products

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## RBI and Measures of Risk

Allocation of Agency resources under RBI at each inspected processing establishment will rely upon two measures of risk:

- Inherent Risk Measure: a measure of the inherent risk posed to the public health by each type of processed meat and poultry product, assuming typical process control by the producing establishment, and;
- Risk Control Measure: a measure of the amount of risk control achieved by each establishment.

## Measure of Inherent Risk

- Provides a relative value for the risk posed to the public health by each category of processed meat and poultry product produced in an official establishment.
- Takes into account the species of animal processed and the type of processing (hazard component); and the production volume (exposure component) for that product at each establishment.

## Inherent Risk Formula

$\text{Hazard} \times \text{Species/Process Value} \times \text{Volume} = \text{Inherent Risk}$



$\text{Exposure} = \text{Risk Measure}$

## Species/Process Values

- Each Species/Process Value represents a measure of the relative risk of illness posed by one of the categories of processed meat and poultry products
- FSIS determined the initial Species/Process values through a 2005 expert elicitation.
- FSIS is having a new, modified expert elicitation developed by a contractor now. It will be completed in June 2007.

### **The 2005 Expert Elicitation**

- The instrument for the 2005 elicitation was peer reviewed by five experts outside of FSIS.
- FSIS asked 23 experts from academia, the Federal government and industry to score 24 species/process categories to reflect the relative risk of illness per serving that each poses to consumers.
- A list of those experts can be found on the FSIS Webpage at:  
[http://www.fsis.usda.gov/PDF/Elicitation\\_Memo\\_092205.pdf](http://www.fsis.usda.gov/PDF/Elicitation_Memo_092205.pdf)

### Median Species/Process Values

Finished Product Type	Median Score
Raw ground, comminuted, or otherwise non-intact beef	10
Raw ground, comminuted, or otherwise non-intact chicken	10
Raw ground, comminuted, or otherwise non-intact turkey	10
Raw ground, comminuted, or otherwise non-intact poultry other than chicken or turkey	10
Raw ground, comminuted, or otherwise non-intact meat other than beef or pork	9.7
Raw intact turkey	9
Raw intact chicken	8
Raw intact poultry—other than chicken or turkey	8
Raw ground, comminuted, or otherwise non-intact pork	8
Raw otherwise processed meat	7
Raw otherwise processed poultry	7
Raw intact beef	5
Raw intact meat—other than beef or pork	5
Raw intact pork	4
RTE fully-cooked meat	3
RTE fully-cooked poultry	3
RTE acidified/fermented meat (without cooking)	2
RTE acidified/fermented poultry (without cooking)	2
RTE dried meat	2
RTE dried poultry	2
RTE salt-cured meat	2
RTE salt-cured poultry	2
RTE meat fully cooked without subsequent exposure to the environment	1
RTE poultry fully cooked without subsequent exposure to the environment	1

### The 2007 Expert Elicitation

- The next elicitation, to be completed in June of 2007, will use instruments modified in response to public comment, as well as a peer review.
- Also in response to public comment, the experts will be recruited from three groups (academics, public health professionals, and industry experts) in equal numbers.

Volume

FSIS will use production volume data for each type of product to develop the exposure component for each establishment. Volume data has been collected for each establishment from FSIS inspection program personnel.

Volume Data Collection

Pounds Shipped in a Typical Day	Number of Days Product Shipped in the Last 30 Days				
	1 - 5 Days	6 - 10 Days	11 - 15 Days	16 - 20 Days	More than 20 Days
Don't Know	*	*	*	*	*
1 - 50 Pounds	1-250	6-500	11-750	16-1000	21-1500
51 - 250 Pounds	51-1250	306-2500	561-3750	816-5000	1071-7500
251 - 500 Pounds	251-2500	1506-5000	2761-7500	4016-10000	5271-15000
501 - 2,000 Pounds	501-10000	3006-20000	5511-30000	8016-40000	10521-60000
2,001 - 10,000 Pounds	2001-50000	12006-100000	22011-150000	32016-200000	42021-300000
10,001 - 50,000 Pounds	10001-250000	60006-500000	110011-750000	160016-1000000	210021-1500000
More than 50,000 Pounds	*	*	*	*	*

Products of Pound/Day Averages Divided into Quintiles

Average Pounds Shipped in a Typical Day	Average Number of Days Product Shipped in the Last 30 Days				
	2.5	7.5	12.5	17.5	25
25	62.5	187.5	312.5	437.5	625
150	375	1125	1875	2625	3750
375	937.5	2812.5	4687.5	6562.5	9375
1250	3125	9375	15625	21875	31250
6000	15000	45000	75000	105000	150000
30000	75000	225000	375000	525000	750000
150000	375000	1125000	1875000	2625000	3750000

1	2	3	4	5
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Inherent Risk Score

The Inherent Risk score will be calculated on a 100 point scale, with 2 being the lowest calculated score:



Example Calculations

	Product	Inherent Risk (R)	Volume (V)	% Volume	R x % Volume (RV)	Score (V x RV)
Plant A	100% Raw Ground, Comminuted, or Otherwise Not Intact Beef	20	1	1	20	20

Plant B	100% Raw Ground, Comminuted, or Otherwise Not Intact Beef	20	5	1	20	100

**More Example Calculations**

Product		Inherent Risk (R)	Volume (V)	% Volume	R x % Volume (RV)	Score (V x RV)
Plant C	100% Raw Ground, Comminuted, or Otherwise Not Intact Beef	20	1	0.2	4	4
	100% Raw Ground, Comminuted, or Otherwise Not Intact Pork	16	2	0.4	6.4	12.8
	Raw Intact Beef	10	2	0.4	4	8
	Sum		5	1	14.4	24.8

Plant D	100% Raw Ground, Comminuted, or Otherwise Not Intact Beef	20	2	0.2	4	8
	100% Raw Ground, Comminuted, or Otherwise Not Intact Pork	16	4	0.4	6.4	25.6
	Raw Intact Beef	10	4	0.4	4	16
	Sum		10	1	14.4	49.6

Plant E	100% Raw Ground, Comminuted, or Otherwise Not Intact Beef	20	3	0.5	10	30
	100% Raw Ground, Comminuted, or Otherwise Not Intact Pork	16	1	0.16	2.56	2.56
	Raw Intact Beef	10	2	0.33	3.33	6.66
	Sum		6	1	15.89	39.22