

APPENDIX V

**Physician's Verification Work Sheet
Re: Questions 46 and 47**

**Field Operations Manual
NIOSH Contract No. 210-76-0175**

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Physician's Verification Work Sheet

Re: Questions 46 and 47

The following questions are designed to verify self-administered responses to questions 46 and 47 listed in Appendix IV - Questionnaire.

Physician's Name: _____ Date: _____

46a. Are the participant's signs and symptoms compatible with a diagnosis of:
(Circle only one)

A: Grain fever

B: Questionable grain fever

C: Not grain fever

b. How many episodes of grain fever did the participant experience during his/her work life?

0-9 10-19 20-99 100-300

c. When did the participant notice the episode (fever and/or chills)?
(Circle only one)

A: During work

B: After work

C: Either during or after work

d. When did the participant experience an episode (fever and/or chills)?

A: On first day back to work

B: Any day of the week

C: Any day of the week but predominantly (or worse) first day back to work

e. If episode was experienced on the first day back to work, how long had he/she been off work (days)?

1-7 8-30 31-180 181-300

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47. Associated respiratory symptoms:

A: None or not registered

B: Cough and/or expectoration

C: Tightness and/or wheezing

D: Dyspnea

APPENDIX VI

Questionnaire Analysis

**Field Operations Manual
NIOSH Contract No. 210-76-0175**

APPENDIX VI

Questionnaire Analysis

Introductory Statement:

The answers to the individual questionnaires were entered into our computer file. Prevalence of symptoms or "conditions" were obtained by simple statistical analysis to determine the proportion of workers with the symptoms, e.g., cough in the morning or "condition," e.g., age, lived on a farm, had chest illness often. The significance of the differences in prevalence of symptoms or "conditions" between grain workers and controls was done using Chi-Square analysis. The questions analyzed by Chi-Square are indicated by # by the question number. This analysis compares the proportion of grain workers with or without the symptom with the proportion of controls with or without the symptom. More detailed analysis is described in the text of the report from page ___ to page ___ and Tables ____.

To simplify the table, key words and/or abbreviations were used to describe each question. For the proper interpretation and for understanding this table the reader should read the complete text of the question from the questionnaire (Appendix IV).

In addition, the following clarifications are provided:

Grain = Grain workers (see text for definition)

Control = City services workers (see text for definition)

Smoker = Current cigarette smoker = yes to Q 51a

Nonsmoker = Never smoked = no to Q 50
(See Questionnaire for details on smoking)

Ques = Question number

= Chi-Square analysis result reported here

Description = See text of each question on questionnaire (Appendix IV)

Code = Y = yes; N = no (see Questionnaire for details)

NR = Number of workers from which proportion (%) were obtained. NR varies depending on question, e.g., one may want to know what proportion of all workers (NR=300) interviewed had wheezing at work or how many of those workers with wheezing on exposure (NR=183) had it during work.

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CNT = Number of positive answers to question or number of workers that selected a particular choice of answers to multiple choice questions.

% = Refers to percent of NR

"C+E" = Indicates positive answer to questions C and E

"18ABC+28ABC" = Indicates positive answer to questions 18A or B or C and 28A or B or C.

+ or · by CNT/Total = Indicates $P < .05$ by Chi-Square analysis on questions tested marked # or those questions with no symbol by CNT number indicates no significant difference between grain and control workers.

QUESTIONNAIRE ANALYSIS - TOTAL AND ALL SMOKING HABITS

Q = chi-square done;	C	G R A I N										C O N T R O L S													
U + = p<.05; 9= p<.001;	O																								
R Blank = not significant	D	TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
S DESCRIPTION	E	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%

#																										
11	Live/work on farm	Y	307	359	11	151	14	9	92	12	13	64	9	14	239	2	1	106	2	2	70	-	-	63	-	-

Cough:

13	First thing in a.m.	A	310	1099	35	153	75	49	92	19	21	65	15	23	239	37	15	106	31	29	70	1	1	63	5	8
	Other times	B	310	1739	56	153	104	68	92	42	46	65	27	42	239	57	24	106	43	41	70	7	10	63	7	11
	x4-6/d > 4x/wk	C	310	1329	43	153	75	49	92	34	37	65	23	35	239	38	16	106	28	26	70	5	7	63	5	8
	Most days/3 months	D	310	1439	46	153	85	56	92	34	37	65	24	37	239	47	20	106	35	33	70	7	10	63	5	8
	Cough more than 2 yrs	E	310	1759	56	153	104	68	92	45	49	65	26	40	239	58	25	106	44	42	70	7	10	63	7	11

Cough: Years

13Z	0-2		187	29	16									64	18	28										
	3-5		187	55	29									64	19	30										
	6-10		187	50	27									64	13	20										
	11-20		187	29	16									64	9	14										
	21-51		187	24	13									64	5	8										

Phlegm:

14	First thing in a.m.	A	310	1169	37	153	71	46	92	26	28	65	19	29	239	36	15	106	28	26	70	3	4	63	5	8
	Other times	B	310	1379	44	153	77	50	92	36	39	65	24	37	239	30	13	106	22	21	70	5	7	63	3	5
	x4-6/d > 4x/wk	C	310	1289	41	153	72	47	92	33	36	65	23	35	239	30	13	106	23	22	70	5	7	63	2	3
	Most days/3 months	D	310	1409	45	153	84	55	92	33	36	65	23	35	239	39	16	106	30	28	70	6	9	63	3	5
	Cough more than 2 yrs	E	310	1519	49	153	88	57	92	40	43	65	23	35	239	43	18	106	32	30	70	5	7	63	6	10
		C+E	310	1199	38	153	68	44	92	30	33	65	21	32	239	27	11	106	21	20	70	4	6	63	2	3

Q U E S	C O D E	G R A I N												C O N T R O L S																		
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM									
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%							
		Phlegm: Years																														
#																																
14E		0-2	159	24	15																			50	15	30						
		3-5	159	39	25																			50	13	26						
		6-10	159	36	23																			50	15	30						
		11-20	159	39	25																			50	5	10						
		21-50	159	21	13																			50	2	4						
#		13>2 yrs + 14>2 yrs																														
		310	194*	63	113	36	49	16	32	10	239	67	28	49	21	9	4	9	4													
#		Cough Worse:																														
15																																
		Workdays	A	192	140*	73	114	78	68	48	40	83	30	22	73	67	12	18	51	10	20	9	1	11	7	1	14					
		Weekends	B	192	1	1	114	1	1	48	0	0	30	0	0	67	2	2	51	2	4	9	0	0	7	0	0					
		No Difference	C	192	51*	27	114	35	31	48	8	17	30	8	27	67	53	79	51	39	77	9	8	89	7	6	86					
#		Cough and/or phlegm on vacation:																														
16																																
		Better	A	207	170*	82	118	95	81	54	47	87	35	28	80	78	22	28	56	15	27	12	3	25	10	4	40					
		Same	B	207	37*	18	118	23	20	54	7	13	35	7	20	78	56	72	56	41	73	12	9	75	10	6	60					
		Worse	C	207	0	0	118	0	0	54	0	0	35	0	0	78	0	0	56	0	0	12	0	0	10	0	0					
#		Cough and/or phlegm made worse by exposure to:																														
18																																
		Grain Dust	A	310	200*	65	153	114	75	92	52	57	65	34	52	239	1	.5	106	0	0	70	0	0	63	1	2					
		Other Dust	B	310	67*	22	153	38	25	92	13	14	65	16	25	239	25	10	106	18	17	70	4	6	63	3	5					

Q U E S	C O D E	G R A I N										C O N T R O L S														
		TOTAL		SMOKER		EX-SM		NONSM		TOTAL		SMOKER		EX-SM		NONSM										
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%							
18 CONTINUED																										
	Gases or Fumes	C	310	58	19	153	33	22	92	14	15	65	11	17	239	31	13	106	20	19	70	7	10	63	4	6
	House dust	D	310	14	5	153	7	5	92	3	3	65	4	6	239	6	3	106	4	4	70	1	1	63	1	2
	Barn dust	E	310	239	7	153	10	7	92	7	8	65	6	9	239	1	.5	106	1	1	70	0	0	63	0	0
	Weather	F	310	34	11	153	13	8	92	9	10	65	12	18	239	31	13	106	20	19	70	5	7	63	6	1
	Other	G	310	19	6	153	11	7	92	3	3	65	5	8	239	14	6	106	12	11	70	1	1	63	1	2
#	18 ABC + 28 ABC		310	1459	46	153	89	58	92	35	38	65	21	32	239	20	8	106	12	11	70	5	7	63	3	4

19 Which grain dusts bring
on cough and/or phlegm:

Durum wheat	A	200	172
Spring wheat	B	200	77
Rye	C	200	84
Oats	D	200	65
Barley	E	200	150
Corn	F	200	13
Soybean	G	200	17
Linseed	H	200	3
Sunflower	I	200	5
Beets	J	200	1
Malt	K	200	0
Other	L	200	5

Q U E S T I O N	C O D E	G R A I N												C O N T R O L S												
		TOTAL		SMOKER			EX-SM			NONSM			TOTAL		SMOKER			EX-SM			NONSM					
		NR.	CNT	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%		
		DESCRIPTION																								
20		Cough and/or phlegm frequency:																								
	A	199	153	77	113	83	74	52	42	81	34	28	82	1	1	100	0	0	0	0	0	0	0	1	1	10
	B	199	35	18	113	22	20	52	9	17	34	4	12	1	0	0	0	0	0	0	0	0	0	1	0	0
	C	199	5	3	113	5	4	52	0	0	34	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
	D	199	4	2	113	3	3	52	1	2	34	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
	E	199	2	1	113	0	0	52	0	0	34	2	6	1	0	0	0	0	0	0	0	0	0	1	0	0
	F	199	0	-	113	0	0	52	0	0	34	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
#		Wheezing and/or chest tightness:																								
21	A	310	200*	65	153	110	72	92	53	58	65	37	57	239	101	42	106	53	50	70	29	41	63	19	30	
#		Wheeze only:																								
21	B	200	33*	17	110	19	17	63	7	13	37	7	19	101	46	46	53	22	42	29	13	45	19	11	58	
#		Symptoms:																								
22	A	200	22+	11	110	11	10	53	7	13	37	4	11	100	20	20	53	11	21	28	2	7	19	7	37	
	B	200	37	19	110	15	14	53	12	23	37	10	27	100	19	19	53	12	23	28	4	14	19	3	16	
	C	200	13+	7	110	10	9	53	2	4	37	1	3	100	14	14	53	8	15	28	4	14	19	2	11	
	D	200	38	19	110	16	15	53	12	23	37	10	27	100	17	17	53	9	17	28	7	25	19	1	5	
	E	200	90+	45	110	58	53	53	20	38	37	12	32	100	30	30	53	13	25	28	11	39	19	6	32	

Q U E S	C O D E	G R A I N												C O N T R O L S											
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%
23-	Total Years of wheezing																								
24																									
	0-5	200	85	43	110	44	40	53	18	34	37	23	62	100	47	47	53	31	59	28	10	36	19	6	32
	6-10	200	45	23	110	33	30	53	6	11	37	6	16	100	12	12	53	5	9	28	3	11	19	4	21
	11-15	200	34	17	110	16	15	53	12	23	37	6	16	100	11	11	53	7	13	28	3	11	19	1	5
	16-20	200	11	6	110	7	6	53	3	6	37	1	3	100	10	10	53	4	8	28	2	7	19	4	21
	21-25	200	9	5	110	4	4	53	4	8	37	1	3	100	5	5	53	2	4	28	2	7	19	1	5
	26-30	200	7	4	110	2	2	53	5	9	37	0	0	100	10	10	53	3	6	28	6	21	19	1	5
	31-70	200	9	5	110	4	4	53	5	9	37	0	0	100	5	5	53	1	2	28	2	7	19	2	11
23	Age wheezing first occurred:																								
	0-15	199	10+	5	110	5	5	52	5	10	37	0	0	98	17	17	52	4	8	27	5	19	19	8	42
	16-25	199	69	35	110	35	32	52	17	33	37	17	46	98	26	27	52	16	31	27	6	22	19	4	21
	26-35	199	53	27	110	37	34	52	11	21	37	5	14	98	25	26	52	14	27	27	9	33	19	2	11
	36-45	199	40	20	110	23	21	52	8	15	37	9	24	98	18	18	52	13	25	27	4	15	19	1	5
	46-55	199	23	12	110	9	8	52	10	19	37	4	11	98	11	11	52	5	10	27	2	7	19	4	21
	56-70	199	4	2	110	1	1	52	1	2	37	2	5	98	1	1	52	0	0	27	1	4	19	0	0

Q U E S T I O N #	C O N T R O L S	G R A I N										C O N T R O L S															
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM				
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%		
24		Age wheeze first occur:																									
		15-25	200	23	12	110	13	12	53	3	6	37	7	19	100	10	10	53	6	11	28	1	4	19	3	16	
		26-35	200	52	26	110	30	27	53	12	23	37	10	27	100	35	35	53	18	34	28	9	32	19	8	42	
		36-45	200	35	18	110	25	23	53	15	9	37	5	14	100	26	26	53	16	30	28	9	32	19	1	5	
		46-55	200	60	30	110	34	31	53	16	30	37	10	27	100	18	18	59	9	17	28	3	11	19	6	32	
		56-70	200	30	15	110	8	7	53	17	32	37	5	14	100	11	11	53	4	8	28	6	21	19	1	5	
#	25	Wheezing at work	Y	310	165+	53	153	91	59	92	45	49	65	29	45	239	50	21	106	26	25	70	14	20	63	10	6
		OF Y21A	Y	200	165+	83	110	91	83	53	45	85	37	29	78	100	50	50	53	26	49	28	14	50	19	10	53
#	26	Wheezing frequency:																									
		Once a day	A	165	469	28	91	28	31	45	14	31	29	4	14	50	6	12	26	4	15	14	2	14	10	0	0
		Few times/week	B	165	34+	21	91	14	15	45	15	33	29	5	17	50	13	26	26	10	39	14	2	14	10	1	10
		Few times/month	C	165	509	30	91	27	30	45	9	20	29	14	48	50	11	22	26	5	19	14	2	14	10	4	40
		Few times/year	D	165	26	16	91	16	18	45	7	16	29	3	10	50	13	26	26	5	19	14	5	36	10	3	30
		Few times/year	E	165	9	6	91	6	7	45	0	0	29	3	10	50	6	12	26	1	4	14	3	21	10	2	20
		Only once	F	165	0	0	91	0	0	45	0	0	29	0	0	50	1	2	26	1	4	14	0	0	10	0	0
#	27	Wheezing worse:																									
		First day at work	A	165	259	15	91	14	15	45	8	18	29	3	10	50	2	4	26	2	8	14	0	0	10	0	0
		Any day at work	B	165	999	60	91	54	59	45	28	62	29	17	59	50	10	20	26	5	19	14	4	29	10	1	10
		Weekends	C	165	0	0	91	0	0	45	0	0	29	0	0	50	0	0	26	0	0	14	0	0	10	0	0
		Makes no difference	D	165	419	25	91	23	25	45	9	20	29	9	31	50	38	76	26	19	73	14	10	71	10	9	90
#	26	A or B or C or D		310	1569	50	153	85	56	92	45	49	65	26	45	23	43	18	106	24	23	70	11	16	63	8	13

Q U E S T I O N #	C O D E	G R A I N												C O N T R O L S																							
		TOTAL				SMOKER				EX-SM				NONSM				TOTAL				SMOKER				EX-SM				NONSM							
		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%		NR.	CNT	%	
DESCRIPTION																																					
28		Wheezing made worse:																																			
	A	310	183*	59	153	104	68	92	46	50	65	46	50	239	5	2	106	2	2	70	0	0	63	3	5												
	B	310	48	15	153	25	16	92	13	14	65	10	15	239	24	10	106	11	10	70	9	13	63	4	6												
	C	310	53+	17	153	27	18	92	16	17	65	10	15	239	20	8	106	9	8	70	7	10	63	4	6												
	D	310	9	3	153	5	3	92	2	2	65	2	3	239	12	5	106	2	2	70	7	10	63	3	5												
	E	310	14	5	153	4	3	92	5	5	65	5	8	239	5	2	106	2	2	70	2	3	63	1	2												
	F	310	22+	7	153	8	5	92	7	8	65	7	11	239	6	3	106	3	3	70	2	3	63	1	2												
	G	310	4	1	153	1	1	92	2	2	65	1	2	239	5	2	106	2	2	70	2	3	63	1	2												
	H	310	7	2	153	3	2	92	2	2	65	2	3	239	12	5	106	3	3	70	4	6	63	5	8												
	I	310	34	11	153	14	9	92	13	14	65	7	11	239	37	15	106	17	16	70	13	19	63	7	11												
	J	310	11	4	153	4	3	92	3	3	65	4	6	239	14	6	106	8	8	70	6	9	63	0	0												
	NA	310	124	40	153	49	32	92	44	48	65	31	48	239	179	75	106	78	74	70	48	69	63	53	8												

29 Grain dusts bring on wheezing:

Durum wheat	A	183	168	92
Spring wheat	B	183	76	42
Rye	C	183	82	45
Oats	D	183	55	30
Barley	E	183	129	75
Corn	F	183	10	5
Soybean	G	183	16	9

Q U E S	C O D E	G R A I N										C O N T R O L S											
		TOTAL		SMOKER			EX-SM			NONSM			TOTAL		SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	

29 Continued

Linseed	H	183	2																			
Sunflower	I	183	4																			
Beets	J	183	2																			
Malt	K	183	0																			
Other	L	183	3																			

30 Wheezing most likely to start:

Before work	A	183	3	2	104	2	2	46	1	2	33	0	0
During work	B	183	129	71	104	70	67	46	35	76	33	24	73
After work	C	183	21	12	104	12	12	46	4	9	33	5	15
Either during/after	D	183	30	16	104	20	19	46	6	13	33	4	12

31 Wheezing during work

Right away	A	156	30	19	88	16	18	41	6	15	27	8	30
Hours After	B	156	126	81	88	72	82	41	35	85	27	19	70

31B# Hour wheeze start during work:

1		127	18	14	73	9	12	35	5	14	19	4	21
2		127	53	42	73	30	41	35	16	46	19	7	37
3		127	18	14	73	10	14	35	6	17	19	2	11

Q U E S	C O D E	G R A I N								C O N T R O L S											
		TOTAL			SMOKER			EX-SM		NONSM		TOTAL			SMOKER			EX-SM		NONSM	
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT

31B CONTINUED:

4	127	20	16	73	13	18	35	3	9	19	4	21
5	127	8	6	73	4	6	35	4	11	19	0	0
6	127	10	8	73	7	10	35	1	3	19	2	11
7	127	0	0	73	0	0	35	0	0	19	0	0
8	127	0	0	73	0	0	35	0	0	19	0	0

31B Wheeze # hours before start:

0-2	127	71	56	73	39	53	35	21	60	19	11	58
3-4	127	38	30	73	23	32	35	9	26	19	6	32
5-6	127	18	14	73	11	15	35	5	14	19	2	11
7-8	127	0	0	73	0	0	35	0	0	19	0	0
8-20	127	0	0	73	0	0	35	0	0	19	0	0

32 Wheeze after work-# hrs

1	35	12	34	21	8	38	6	2	33	8	2	25
2	35	7	20	21	3	14	6	2	33	8	2	25
3	35	2	6	21	0	0	6	0	0	8	2	25
4	35	4	11	21	4	19	6	0	0	8	0	0
5	35	1	3	21	1	5	6	0	0	8	0	0
6	35	5	14	21	2	10	6	2	33	8	1	13
7	35	0	0	21	0	0	6	0	0	8	0	0

Q U E S	C O D E	G R A I N												C O N T R O L S													
		TOTAL		SMOKER			EX-SM			NONSM			TOTAL		SMOKER		EX-SM		NONSM								
		NR.	CNT %	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %					
DESCRIPTION																											
32 CONTINUED:																											
		8	35	1	3	21	0	0	6	0	0	8	1	13													
		9	35	1	3	21	1	5	6	0	0	8	0	0													
		10	35	1	3	21	1	5	6	0	0	8	0	0													
		>10	35	1	3	21	1	5	6	0	0	8	0	0													
33A	Wheezing-wake up (See Below)	Y	20	61	30	111	34	31	52	16	31	38	11	29	101	24	24	53	12	23	29	8	28	19	4	21	
33B	Wheezing wake up- how often:																										
	every night	A	60	6	10	33	4	12	16	2	13	11	0	0	24	3	13	12	1	8	8	0	0	4	2	50	
	few times/month	B	60	21	35	33	11	33	16	5	31	11	5	45	24	8	33	12	4	33	8	4	50	4	0	0	
	few times/year	C	60	23	38	33	11	33	16	6	38	11	6	55	24	8	33	12	5	42	8	2	25	4	1	25	
	few times/ever	D	60	8	13	33	7	21	16	1	6	11	0	0	24	5	21	12	2	17	8	2	25	4	1	25	
	only once	E	60	2	3	33	0	0	16	2	13	11	0	0	24	0	0	12	0	0	8	0	0	4	0	0	
	never	F	60	0	0	33	0	0	16	0	0	11	0	0	24	0	0	12	0	0	8	0	0	4	0	0	
34A	Wheeze worse time/year	Y	195	64	33	110	36	33	49	12	25	36	16	44	106	10	38	57	20	35	29	15	52	20	5	25	
34B	Wheeze-months worse																										
	January	01	62	20	32	35	11	31	12	4	33	15	5	33	40	8	20	20	18	90	15	8	53	5	2	40	
	February	02	62	1	2	35	0	0	12	0	0	15	1	7	40	1	3	20	1	5	15	0	0	5	0	0	
	March	03	62	3	5	35	3	9	12	0	0	15	0	0	40	2	5	20	0	0	15	2	13	5	0	0	
	April	04	62	10	16	35	6	17	12	2	17	15	2	13	40	2	5	20	0	0	15	2	13	5	0	0	
33A	Wheezing - Wake-up		7	310	61	20	153	34	22	92	16	17	65	11	17	239	24	10	106	12	11	70	8	11	63	4	6

Q U E S T I O N	C O D E	G R A I N										C O N T R O L S									
		TOTAL		SMOKER			EX-SM		NONSM			TOTAL		SMOKER			EX-SM		NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT

34B CONTINUED

May	05	62	7	11	35	4	11	12	1	8	15	2	13	40	4	10	20	1	5	15	1	7	5	2	40
June	06	62	7	11	35	5	14	12	1	8	15	1	7	40	0	0	20	0	0	15	0	0	5	0	0
July	07	62	2	3	35	1	3	12	1	8	15	0	0	40	0	0	20	0	0	15	0	0	5	0	0
August	08	62	5	8	35	1	3	12	2	17	15	1	13	40	0	0	20	0	0	15	0	0	5	0	0
September	09	62	5	8	35	3	9	12	1	8	15	1	7	40	1	3	20	0	0	15	1	7	5	0	0
October	10	62	1	2	35	0	0	12	0	0	15	1	7	40	2	5	20	0	0	15	1	7	5	0	0
November	11	62	1	2	35	1	3	12	0	0	15	0	0	40	0	0	20	0	0	15	0	0	5	1	20
December	12	62	0	0	35	0	0	12	0	0	15	0	0	40	0	0	20	0	0	15	0	0	5	0	0

35 Wheezing on vacation:

Better	A	196	1729	88	109	98	90	51	46	90	36	28	78	101	20	20	53	13	25	29	4	14	19	3	16
Same	B	196	249	12	109	11	10	51	5	10	36	8	22	101	79	78	53	38	72	29	25	86	19	16	84
Worse	C	196	0	0	109	0	0	51	0	0	36	0	0	101	2	2	53	2	4	29	0	0	19	0	0

36 Wheeze 2 or more

	Y	196	769	39	109	48	44	52	20	39	35	8	23	101	17	17	53	7	13	29	7	24	19	3	16
	Y	310	76	25	153	48	31	92	20	22	65	8	12	239	17	7	106	7	7	70	7	10	63	3	5

Q U E S	C O D E	DESCRIPTION	G R A I N												C O N T R O L S												
			TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM			
			NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	
Shortness of breath:																											
37		SOB ever	37	310	1759	56	153	97	63	92	49	53	65	29	45	239	90	38	106	48	45	70	30	43	63	12	19
38		SOB slight hill	38	310	118 ⁺	38	153	65	42	92	29	32	65	24	37	239	64	27	106	32	30	70	25	36	63	7	11
39		SOB other people/ level ground	39	310	23 ⁺	7	153	11	7	92	9	10	65	3	5	239	8	3	106	3	3	70	4	6	63	1	2
40		SOB own pace/level	40	310	4	1	153	3	2	92	1	1	65	0	0	239	3	1	106	1	1	70	2	3	63	0	0
41		SOB dressing/walking about house	41	310	7	2	153	4	3	92	2	2	65	1	2	239	5	2	106	3	3	70	2	3	63	0	0
42 How many years had SOB																											
		0-5	145	77	53	84	43	51	32	12	38	29	22	76	71	42	59	36	19	53	26	14	54	9	9	100	0
		6-10	145	43	30	84	30	36	32	10	31	29	3	10	71	14	20	36	9	25	26	5	19	9	0	0	0
		11-15	145	14	10	84	5	6	32	5	16	29	4	14	71	7	10	36	6	17	26	1	4	9	0	0	0
		16-20	145	8	6	84	5	6	32	3	9	29	0	0	71	7	10	36	2	6	26	5	19	9	0	0	0
		21-25	145	1	1	84	1	1	32	0	0	29	0	0	71	1	1	36	0	0	26	1	4	9	0	0	0
		26-50	145	2	1	84	0	0	32	2	6	29	0	0	71	0	0	36	0	0	26	0	0	9	0	0	0
43		SOB at work	Y	310	113	37 ⁺	153	61	40	92	35	38	65	17	26	239	26	11	106	13	12	70	8	11	63	5	8
44A		SOB to grain dust	Y	310	151	49	153	84	55	92	47	51	65	20	31												

Q U E S	C O D E	DESCRIPTION	G R A I N								C O N T R O L S							
			TOTAL		SMOKER		EX-SM		NONSM		TOTAL		SMOKER		EX-SM		NONSM	
			NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %

44B SOB grain dust worse:

Durum	A	151	136	90	84	77	92	47	42	89	20	17	85
Spring	B	151	71	47	84	45	54	47	18	38	20	8	40
Rye	C	151	69	46	84	34	40	47	25	53	20	10	50
Oats	D	151	47	31	84	27	32	47	12	26	20	8	40
Barley	E	151	99	66	84	50	60	47	33	70	20	16	80
Corn	F	151	5	3	84	4	5	47	1	2	20	0	
Soybean	G	151	16	11	84	11	13	47	4	9	20	1	5
Linseed	H	151	1	1	84	0		47	1	2	20	0	
Sunflower	I	151	4	3	84	1	1	47	1	2	20	2	10
Beets	J	151	0	0	84	0		47	0		20	0	
Malt	K	151	0		84	0		47	0		20	0	
Other	L		4	3	84			47	2	4	20	1	5

44C SOB when worse:

During work	A	149	122	82
After work	B	149	9	6
Either	C	149	18	12

44D SOB start during work:

Right away	A	143	48	34
Hours later	B	143	15	66

Q U E S	C O D E	G R A I N												C O N T R O L S											
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%
		DESCRIPTION																							

44D SOB start during work/
hours:

0-1	95	19	20
2-3	95	47	50
4-5	95	24	25
6-7	95	5	5
8-9	95	0	0

44B SOB start after work/
hours:

0-1	20	7	35	10	3	30	4	3	75	6	1	17	2	1	50	1	0	0	0	0	0	1	0
2-3	20	11	55	10	6	60	4	1	25	6	4	67	2	1	50	1	1	100	0	0	0	1	0
4-5	20	1	5	10	1	10	4	0	0	6	0	0	2	0	0	1	0	0	0	0	0	1	0
6-7	20	1	5	10	0	0	4	0	0	6	1	17	2	0	0	1	0	0	0	0	0	1	0
8-9	20	0	0	10	0	0	4	0	0	6	0	0	2	0	0	1	0	0	0	0	0	1	0
10-11	20	0	0	10	0	0	4	0	0	6	0	0	2	0	0	1	0	0	0	0	0	1	0
12-13	20	0	0	10	0	0	4	0	0	6	0	0	2	0	0	1	0	0	0	0	0	1	0
14-20	20	0	0	10	0	0	4	0	0	6	0	0	2	0	0	1	0	0	0	0	0	1	0

45A Fever and/or chills Y 310 121 39 153 60 39 92 40 44 65 21 32

45B Fever and/or chills, Which: † 123 1 1

Only fever	A	123	28	23
Only chills	B	123	9	7
Mostly fever	C	123	15	12
Mostly chills	D	123	3	2
Both fever & chills	E	123	67	55

Q U E S	C O D E	G R A I N								C O N T R O L S													
		TOTAL			SMOKER			EX-SM		NONSM		TOTAL			SMOKER			EX-SM		NONSM			
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	
DESCRIPTION																							
46A		Grain Fever?																					
	A	310	99	32	153	47	31	92	31	33	65	21	32										
	B	310	16	5																			
	C	310	6	2																			
46B		Grain Fever Episodes																					
		96	40	42																			
		96	22	23																			
		96	18	19																			
		96	16	17																			
46C		Grain Fever Noticed:																					
	A	115	37	32																			
	B	115	40	35																			
	C	115	38	33																			
46D		Grain Fever day:																					
	A	115	15	13																			
	B	115	95	83																			
	C	115	5	4																			
46E		# Days off work before grain fever:																					
		16	2	13																			
		16	5	31																			
		16	3	19																			
		16	6	38																			

Q U E S	C O D E	G R A I N								C O N T R O L S											
		TOTAL			SMOKER			EX-SM		NONSH		TOTAL			SMOKER			EX-SM		NONSH	
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT

47 Associated respiratory
Symptoms:

None		115	84	73
Cough		115	19	17
Wheeze		115	15	13
Dyspnea		115	7	6

48 Sx during exposure to
grain dust:

Eyes burning	A	310	242	78
Stuffy nose	B	310	246	79
Throat sore	C	310	161	52

48D Worse exposure dusts:

Durum	A	281	234	83
Spring	B	281	116	41
Rye	C	281	136	48
Oats	D	281	113	40
Barley	E	281	213	76
Corn	F	281	15	5
Soybean	G	281	22	8
Linseed	H	281	2	1
Sunflower	I	281	10	4
Beets	J	281	5	2
Malt	K	281	0	
Other	L	281	9	3

Q U E S T I O N	C O D E	G R A I N												C O N T R O L S											
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%

Smoking questions
summarized on Table 5.

54 Ever been exposed to pesticides	Y	310	294	95+											239	49	21								
55 Pesticide health problems	Y	294	168	57+											49	7	14								

Q U E S T I O N	C O D E	G R A I N												C O N T R O L S																	
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM								
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%						
DESCRIPTION																															
56		Where did exposures happen?																													
	A	310	168	54																			239	6	3						
	B	310	2	1																			239	0	0						
	C	310	0	0																			239	0	0						
	D	310	0	0																			239	1	.5						
57		What kind of health problems did you have?																													
	A	310	65	21																			239	4	2						
	B	310	7	2																			239	0	0						
	C	310	88	28																			239	4	2						
	D	310	116	37																			239	6	3						
	E	310	0	0																			239	0	0						
	F	310	51	16																			239	2	1						
	G	310	65	21																			239	3	1						
	H	310	12	4																			239	1	5						
	I	310	12	4																			239	0	0						
	J	310	5	2																			239	0	0						
	K	310	14	5																			239	0	0						
	L	310	0	0																			239	0	0						
	M	310	17	5																			239	0	0						

Q U E S T I O N N O T E	C O D E	G R A I N								C O N T R O L S							
		TOTAL		SMOKER		EX-SM		NONSM		TOTAL		SMOKER		EX-SM		NONSM	
		NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %
59 How many times pesti- cide problems?																	
		0-5	164	84	51					7	5	71					
		6-10	164	34	21					7	1	14					
		11-20	164	21	4					7	1	14					
		21-50	164	14	9					7	0	0					
		51-100	164	8	5					7	0	0					
		100-300	164	3	2					7	0	0					
60 Couldn't do regular job																	
	Y		167	28	17					7	2	29					
61 Taken to Doctor?																	
	Y		167	19	11					7	0	0					
62 What pesticides?																	
	A	Do not know	310	50	16					239	1	.5					
	B	Carbon tet	310	103	33					239	1	.5					
	C	Malathion	310	52	17					239	1	.5					
	D	Methyl Bromide	310	51	16					239	1	.5					
	E	Phostoxin	310	84	27					239	1	.5					
	F	Other	310	1	.5					239	3	1					

Q U E S T I O N	C O D E	G R A I N										C O N T R O L S													
		TOTAL		SMOKER			EX-SM			NONSM			TOTAL		SMOKER			EX-SM			NONSM				
		NR.	CNT %	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	NR.	CNT %	%	
63A		How much trouble with dust illnesses?																							
	A	310	66	21	153	35	23	92	22	24	65	9	14	239	57	24	106	21	20	70	14	20	63	22	35
	B	310	137	44	153	70	46	92	40	43	65	27	42	239	119	50	106	47	44	70	40	57	63	32	51
	C	310	84	27	153	38	25	92	25	27	65	21	32	239	55	23	106	33	31	70	13	19	63	9	14
	D	310	21	7	153	10	7	92	5	5	65	6	9	239	7	3	106	5	5	70	2	3	63	0	0
	E	310	2	1	153	1	1	92	0	0	65	1	2	219	1	.5	106	0	0	70	1	1	63	0	0
63B		Unable to do usual activities?																							
	A	309	145	47	152	77	51	92	39	42	65	29	45	239	132	55	106	53	50	70	37	53	63	42	67
	B	309	41	13	152	15	10	92	17	19	65	9	14	239	29	12	106	11	10	70	10	14	63	8	13
	C	309	103	33	152	52	34	92	29	32	65	22	34	239	67	28	106	35	33	70	20	29	63	12	19
	D	309	20	7	152	8	5	92	7	7	65	5	8	239	11	5	106	7	7	70	3	4	63	1	2
64		Pulmonary problems																							
	A	310	53	17	153	27	18	92	16	17	65	10	15	239	36	15	106	18	17	70	11	16	63	7	11
	B	310	6	2	153	4	3	92	2	2	65	0	0	239	2	1	106	0	0	70	2	3	63	0	0
	C	310	28	10	153	17	11	92	8	9	65	3	5	239	18	8	106	10	9	70	5	7	63	3	5
	D	310	6	2	153	4	3	92	1	1	65	1	2	239	1	5	106	0	0	70	1	1	63	0	0
	E	310	0	0	153	0	0	92	0	0	65	0	0	239	0	0	106	0	0	70	0	0	63	0	0
	F	310	4	1	153	2	1	92	1	1	65	1	2	239	3	1	106	0	0	70	3	4	63	0	0
	G	310	11	4	153	6	4	92	2	2	65	3	5	239	10	4	106	6	6	70	2	3	63	2	3

64 continued . . .

Q U E S T I O N S	C O D E	G R A I N								C O N T R O L S																
		TOTAL		SMOKER		EX-SM		NONSM		TOTAL		SMOKER		EX-SM		NONSM										
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%							
64 CONTINUED:																										
Sinus trouble	H	310	72	23	153	34	22	92	26	28	65	12	18	239	74	31	106	37	35	70	27	39	63	10	16	
Farmer's lung	I	310	0	0	153	0	0	92	0	0	65	0	0	239	0	0	106	0	0	70	0	0	63	0	0	
65A	Pneumonia	Y	310	68	22	153	29	19	92	24	26	65	24	37	239	60	25	106	32	30	70	18	26	63	10	16
65B Pneumonia # times																										
0-2		67	59	88	29	24	83	24	22	92	14	13	93	60	46	77	32	22	69	18	16	89	10	8	80	
3-5		67	7	10	29	4	14	24	.2	8	14	1	7	60	13	22	32	10	31	18	2	11	10	1	10	
6-10		67	1	2	29	1	3	24	0	0	14	0	0	60	1	2	32	0	0	18	0	0	10	1	10	
10-30		67	0	0	29	0	0	24	0	0	14	0	0	60	0	0	32	0	0	18	0	0	10	0	0	
66A	Bronchial asthma	Y	310	12	4	153	3	2	92	8	9	65	1	2	239	4	2	106	0	0	70	2	3	63	2	3
66B Age asthma started:																										
0-10		11	7	64	3	2	67	7	4	57	1	1	100	4	2	50	0	0	0	2	0	0	2	2	100	0
11-20		11	2	18	3	0	0	7	2	29	1	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0
21-30		11	0	0	3	0	0	7	0	0	1	0	0	4	2	50	0	0	0	2	2	100	2	0	0	0
31-40		11	0	0	3	0	0	7	0	0	1	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0
41-50		11	2	18	3	1	33	7	1	14	1	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0
51-60		11	0	0	3	0	0	7	0	0	1	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0
61-70		11	0	0	3	0	0	7	0	0	1	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0
66C	Still have asthma	Y	11	4	36	3	1	33	7	3	43	1	0	0	4	2	50	0	0	0	2	2	100	2	0	0

Q U E S DESCRIPTION	C O D E	G R A I N										C O N T R O L S													
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%
66D Age asthma stop:																									
0-10		7	5	71	2	2	100	4	2	50	1	1	100	2	0	0	0	0	0	0	0	0	2	0	0
11-20		7	1	14	2	0	0	4	1	25	1	0	0	2	2	100	0	0	0	0	0	0	2	2	100
21-50		7	0	0	2	0	0	4	0	0	1	0	0	2	0	0	0	0	0	0	0	0	2	0	0
51-70		7	1	14	2	0	0	4	1	25	1	0	0	2	0	0	0	0	0	0	0	0	2	0	0
67 Other health problems:																									
Heart	A	310	20	6									239	15	6										
Blood pressure	B	310	49	16									239	33	14										
Allergic	C	310	20	6									239	29	12										
Kidney	D	310	24	8									239	15	6										
Liver	E	310	17	5									239	13	5										
Diabetes	F	310	6	2									239	11	5										
68 Eczema																									
	Y	307	13	4									239	10	4										
69 Skin rashes																									
	Y	310	92	30									239	72	30										
70 Skin rashes > 2 wks																									
	Y	92	56	61									72	42	58										
70B Skin rash area:																									
Face	A	310	12	4									239	11	5										
Ears	B	310	6	2									239	6	3										
Scalp	C	310	7	2									239	10	4										
Hands	D	310	22	7									239	17	7										

CONTINUED ...

Q U E S	C O D E	G R A I N								C O N T R O L S							
		TOTAL		SMOKER		EX-SM		NONSM		TOTAL		SMOKER		EX-SM		NONSM	
		NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %	NR.	CNT %
70B		CONTINUED:															
	Arms	E	310	27	9					239	20	8					
	Chest	F	310	11	4					239	13	5					
	Back	G	310	16	5					239	13	5					
	Abdomen	H	310	15	5					239	13	5					
	Legs	I	310	32	10					239	22	9					
	Feet	J	310	16	5					239	11	5					
71A	Swollen Joints	Y	310	96	31					239	72	30					
71B	Which joints:																
	Fingers	A	310	37	12					239	30	13					
	Wrists	B	310	25	8					239	11	5					
	Elbows	C	310	34	11					239	18	8					
	Shoulder	D	310	40	13					239	25	10					
	Spine	E	310	12	4					239	8	3					
	Hips	F	310	18	6					239	8	3					
	Knee	G	310	44	14					239	35	15					
	Ankle	H	310	24	8					239	11	5					
71C	Joints swollen	Y	95	48	51					70	37	53					
72	Frequent chills	Y	309	35	11					239	11	5					
73	Swelling both ankles	Y	307	10	3					237	4	2					

Q U E S	C O D E	G R A I N												C O N T R O L S											
		TOTAL			SMOKER			EX-SM			NONSM			TOTAL			SMOKER			EX-SM			NONSM		
		NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%	NR.	CNT	%

74 Family diseases:

Chronic bronchitis	A	310	15	5									239	9	4										
Emphysema	B	310	16	5									239	18	8										
Asthma	C	310	33	11									239	25	10										
Hay fever	D	310	20	6									239	27	11										
Cystic fibrosis	E	310	1	.5									239	0	0										
Cancer, lung	F	310	12	4									239	17	8										
Farmer's lung	G	310	0	0									239	1	.5										
Other lung	H	310	11	4									239	8	3										

77D Last exposed to work:

0-3 Days		14	5	36	5	3	60	5	2	40	4	0	0	1	0	0	0	0	0	1	0	0	0	0	0
4-14 Days		14	6	43	5	2	40	5	2	40	4	2	50	1	1	0	0	0	0	1	1	100	0	0	0
28-30 Days		14	3	21	5	0	0	5	1	20	4	2	50	1	0	0	0	0	0	1	0	0	0	0	0
31-180		14	0	0	5	0	0	5	0	0	4	0	0	1	0	0	0	0	0	1	0	0	0	0	0

77 Last exposed to work	A	310	218	70																					
	B	310	65	21																					
	C	310	25	8																					