SN: 244

CONTENTS

QUESTIONNAIRE 1	 	 . 1
ARCHIVE CODEBOOK	 	 11

THOUATION IN THE PLOTE MILLING INDUSTRY

The present research principle of the process industry, and your tech furthering this area of appreciated. The infor COMPTENSATAL and will of the company of	s of innation goally be s	ovalion pertise your a iven wil een by (withican b saiste 11 be 5. Hay	n the coordinate will regarde	capital reat value of as ST.Sc.,	equipment ue in eatly TTCTT,Y
enclosed for return of	the comp	leted g	nestic	nnaire	•	
	. 					
G. Hayward, M.Sc., Anglian Regional Manage Panbury Park, DARWERY. Chelmsford. Essex CM3 hAT.	ement Cen	tre,	·			
EARLY THAT IS NOT THE SECTION OF THE	es rece mean	, , , , , , , , , , , , , , , , , , , 	1/1 104 71	₹. :== -rusus-s	and the state of	en enst ernis
GE TERAL		· •				•
Name of Company	• • • • • •		• • • . • •			•••••
Address of Company	• • • • • •	• • • • • • •	• • • • •	• • • • • •	• • • • • • •	•••••
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	•••••	• • • • • •	• • • • • •	• • • • • •	• • • • • •	•••••
Name of Respondent and Position in Company	• • • • • •			••••	• • • • • • •	
•						
*. 	• • • • • •	• • • • • •	• • • • • •		• • • • • • •	• • • • • •
Capacity of Flour Hill the appropriate box.	in sacks	per ho	ur. F	Please	place a	tick in
	Up to 1	5 sacks	per h	nour		
	16 to 3) sacks	per h	our		
	31 to 4	5 sacks	per h	our		
•	46 to 6	O sacks	per h	our		
·	Over 6	Sacks	per h	our		

If you have installed any of the five innovations listed below since Tay 1970. I should be grateful if you would write the date of installation in the appropriate column. The dates shown are those which you provided during by previous remarch; should any of these be incorrect I would be obliged if you could make the necessary correction. (If you did not complete the previous questionnaire it would be of great assistance if you would write in the dates on which you installed any or all of the various innovations).

	Pneumatic Conveying	Eulk Flour Outloading	Bulk Flour Silo	Surface	Reverse Air Jet Filter D.C.
Year of Installation			,		

Question 2.

Were you as an individual responsible in any way for the decision to proceed with any of the following innovations? Please place a tick in the appropriate column.

	Fully Responsible		Hot Responsible at all.
Pneumatic Conveying	••••	••••.	• • • •
Bulk Flour Outloading	•••	• • • •	• • • •
Fulk Flour Silo	• • • •	• • • •	• • • •
Short Surface Milling System	••••	• • • •	• • • •
Reverse Air Jet Filter D.C.	• • • •	• • • •	• • • •

Question 3.

Would you please place a tick against the Flour Milling Engineer responsible for the provision or installation of the innovations currently in your mill?

<u></u>						
Engineer	Simon	Robinson	Turner	Hing	Nuhler	Others (please specify)
Pneumatic Conveying			• • • • •	••••		••••
Bulk Flour Outloading		•	• • • • •	• • • • •		• • • •
Pulk Flour Silo	• • • • •		• • • •	• • • •	• • • •	
Short Surface Milling System	••••	••••	• • • •		••••	• • • • •
Reverse Air Jet Filter D.C.	••••	••••	• • • •	• • • •	••••	

NOTES OF QUESTION 4

when considering the introduction of innovations, many or all of the attributes listed below may influence your views when comparing the innovation with existing practice:

Low initial cost
Low running cost
Short pay-off period
Considerable saving of time
Considerable reduction in dust
Considerable reduction in noise
Considerable mechanical advantage
Much easier to operate
Much greater flexibility
Easily tried on a small scale
Very reliable in operation
Very easy to understand

The emphasis you place on each characteristic will probably vary and it would be appreciated if you could indicate the strength of your views for each innovation on a scale running from 1 - 5.

Key to the scale:

- 1 Strongly agree with the statement
- 2 Agree with the statement
- 3 Neither agree nor disagree with the statement
- 4 Disagree with the statement
- 5 Strongly disagree with the statement
 - a Consider that the statement is not applicable

Could you please circle the figure which most approximates with your views for each attribute covering the innovations currently under study?

Example:

- When considering 'low initial cost' if you feel that you neither agree nor disagree with this statement you should circle the figure 3.

Low Initial Cost

1 2 (3) 4 5 n/a

- When considering 'raduction in dust' you may feel that you strongly agree with this statement with reference to the innovation under study and would therefore circle the figure 1.

Reduction in Dust

1) 2 3 4 5 n/a

- When considering whether the innovation is 'easily tried on a small scale' you may feel that you strongly disagree with this statement and would therefore circle figure 5.

Easily tried on a small scale

1 2 3 4 5 n/a

- When considering 'much greater flexibility' you may feel that this statement is not applicable to the specific innovation and would therefore circle n/a.

Much greater flexibility

1 2 3 4 5 (n/

Could you please turn to question 4 over the page and answer the question for the five innovations in line with these notes, bearing in mind that you would be considering the innovations in relation to existing practice

e.g. Pneumatics replacing bucket elevators
Bulk outloading bins replacing delivery by sack
Flour silo replacing sack storage in warehouse
Short surface milling system as against a long surface system
Reverse jet filter dust collector as against other forms of
dust collector, such as cyclones or filter sleeve collectors.

In accordance with the examples sot out on page 3, would you please examine the attributes and circle the figure (1 to 5) which you feel equates with their degree of significance when considering the installation of pneumatic conveying.

PHEULATIC COUVENING:

Low initial cost	1	2	3	4	5	n/a
Now running costs	1	2	3	Į+	5	n/a
Short pay-off period	1	2	3	4	5	n/a
Considerable saving of time	1	2	3	4.	5	n/a
Considerable reduction in dust	1	2	3	4	5	n/a
Considerable reduction in noise	1,	2	3	<i>)</i> ₊	5	n/a
Considerable mechanical advan- tage	1	2	3	4	5	n/a
Much easier to operate	1	2	`3	4	5	n/a
Huch greater flexibility	1	2	3	4	_. 5	n/a
Easily tried on a small scale	1 .	2	3	4	5	n/a
Very reliable in operation	1	2	3	Z ₊	5	n/a
Very easy to understand	1	2	3	4	5	n/a

Please list any other attributes which you consider are important when considering the installation of pneumatic conveying, and circle the degree of importance.

•••••	1	2	3	4	5	n/a
••••••	1	2	3	1 +	5	n/a
•••••	1	2	3	4	5	n/a
•••••	1	2	3	4	5	n/a
••••	1	2	3	١.	5	n/a

In accordance with the examples act out on page 3, would you please examine the attributes and circle the figure (1 to 5) which you feel equates with their degree of significance when emaidering the installation of butk outloading bins.

PULK O'TOLOADING PIES:

Low initial cost	1	2	3	$l_{\rm L}$	5	n/a
Low running costs	1	2	3	14	5	n/a
Short pay-off period	1	2	3	4	5	n/a
Considerable saving of time	1	2	3	4	5	n/a
Considerable reduction in dust	1	2	3	4	5	n/a
Considerable reduction in noise	1	2	3	4	5	n/a
Considerable mechanical advantage	1	2	3	4	5	n/a
Much easier to operate	1	2	3	4	5	n/a
Much greater flexibility	1	2	3	۲,	5.	n/a
Easily tried on a small scale	1	2	3	4.	5	n/a
Very reliable in operation	1	2	3	4	5	n/a
Very easy to understand	1	2	3	4	5	n/a
•						

Please list any other attributes which you consider are important when considering the installation of bulk outloading bins and circle the degree of importance.

• • • • • • • • • • • • • • • • • • • •	1	2	3	4	5	n/a
•••••	1	2	3	4	5	n/a
•••••	1	2	3	<i>l</i> ₊	5	n/a
••••••	1	2	3	4	5	n/a
******	1	2	3	4	5	n/a

In accordance with the examples set out on page 3, would you please examine the attributes and circle the figure (1 to 5) which you feel equates with their degree of significance when considering the installation of a bulk flour sile.

BULK FLOUR DILO:

Low initial cost	1	2	3	Į,	5	n/a
Low running costs	1	2	3	Lį.	5	n/a
Short pay-off period	1	2	3	4	5	n/a
Considerable saving of time	1	2	3	۲۴	5	n/a
Considerable reduction in dust	1	2	3	4	5	n/a
Considerable reduction in noise	1	2	3	Lį.	5	rı/a
Considerable mechanical advantage	1	. 2	3	4	5	n/a
Much easier to operate	1	2	3	4	5	n/a
Much greater flexibility	1	2	3 '	4	5	n/a
Easily tried on a small scale	1	2	3	4	5	n/a
Very reliable in operation	1	2	3	4	5	n/a
Very easy to understand	1	2	3	4	5	n/a
			<u> </u>	·	 -	

Please list any other attributes which you consider are important when considering the installation of a bulk flour silo and circle the degree of importance.

••••••						
••••••	1	2	3	4.	5	n/a
•••••	1	2	3	4	5	n/a
••••••	1	2	3	4	5	n/a
•••••	1	2	3	4	5	n/a

In accordance with the examples set out on rage 3, would you please expains the attributes and circle the figure '1 to 5) which you feel equates with their degree of significance when considering the installation of a short surface milling system.

SHORT SURPACE HILLIEG SYSTEM:

·						
Low initial cost	1	2	3	4.	5	n/a
Low running costs	1	2	3	1,	5	n/a
Short pay-off period	1	2	3	4	5	n/a
Considerable saving of time	1	2	3	4	5	n/a
Considerable reduction in dust	1	2	3	۲	5	n/a
Considerable reduction in noise	1	2	. 3	1+	5	n/a
Considerable mechanical advantage	1	2	3	4	5	n/a
Much easier to operate	1	2	3	4	5	n/a
Euch greater flexibility	1	2	3	4	5	n/a
Fasily tried on a small scale	1	2	3	4	5	n/a
Very reliable in operation	1	2	3	4	5	n/a
Very easy to understand	. 1	2	3	4	5	n/a

Please list any other attributes which you consider are important when considering the installation of a short surface milling system and circle the degree of importance.

	1	2	3	4	5	n/a
••••••						
••••••	1	2	3	4	5	n/a
***************************************	1	2	.3	4	5	n/a
•••••	,1	2	3	4	5	n/a

In accordance with the examples set out on mage 3, would you please exemine the attributes and circle the figure (1 to 5) which you feel equates with their degree of significance when considering the installation of a reverse air jet filter dust collector.

REVERSE AIR JET FILTER DUST COLLECTOR:

Low initial cost	1	2	3	4	5	n/a
Low running costs	1	2	3	4	5	n/a
Short may-off period	1	2	3	۱۴	5	n/a
Considerable saving of time	1.	2	3	4	5	n/a
Considerable reduction in dust	1	2	3	4	5	n/a
Considerable reduction in noise	1 .	2	3	4	5	n/a
Considerable mechanical advantage	1	2 .	. 3	4	5	n/a
Much easier to operate	1	2	3	4	5	n/a
Much greater flexibility	1	2	3	4	5	n/a
Easily tried on a small scale	1	2	3	4	5	n/a
Very reliable in operation	1	2	3	Į+	5	n/a
Very easy to understand	1 .	2	- 3	4	5	n/a

Please list any other attributes which you consider are important when considering the installation of a reverse air jet filter dust collector and circle the degree of importance.

•••••••	1	2	3	1+	5	n/a
***************************************	1	2	3	4	5	n/a
••••••	1	2	3	1+	5	n/a
•••••	1	, 2	3	14	5	n/a

When choosing a milling engineer for the installation of plant or purchase of machinery, could you please select from the list the six characteristics which you consider to be the most important to you?

Please place them in order of importance by writing the figure 1 in the box adjacent to the characteristic which you consider to be of most importance, the figure 2 against the characteristic which you consider to be the second most important and so on until you have marked the six characteristics which you feel have most influence on your choice.

CHARACTERISTICS	
Ability to meet delivery dates	
Provision of good initial service	
Provision of good after sales service	
Low initial cost	
Good communications between miller and engineer	
Reliability of products	
Flexibility of products	
Flexibility in outlook of engineer	
Traditional outlook of engineer	
Views on milling process consistent with your own	
Technical leadership in the milling engineering industry	
Others (please specify):	·
••••••	
•••••	
••••••	
••••••	

••••••	

engineer(s) possess?

Please answer this question only for the innovations not as yet installed, indicating your future plans by placing a tick in the appropriate column.

IPRIOVATIONS	ALEFADY PROISEON	Ĭ	ION TO IUS ELY IN :-	STALL	I'IKETA LO
	INSTALL	1-2 yrs.	3-5 yrs.	6-10 yrs.	THIS PALL PROPUCT
Pneumatic					11 J. 7 J. P
conveying Bulk Gutloading	••••	••••	• • • •	• • • • •	
Bulk Flour Silo	· · · · · · · · · · · · · · · · · · ·			• • • • •	••••
Short Surface		·		•	
Milling System	••••	• • • • •	••••	••••	••••
Reverse Air Jet Filter D.C.	••••	••••		••••	

Question 7.		
If you have changed your principal milling engineer since you please state:-	1945 7	, would
Who or what influenced the change?	·	
***************************************	• • • • • •	
••••••••••••••		
b	• • • • •	
If you have changed milling engineers, what major advanta	ges di	id the ne

Do you choose between milling engineers for each new item of plant, or do you purchase consistently from one engineer?

Thank you once again for your kind co-operation: please feel assured that the information will be treated in STRICT COFFIDENCE.

Gdorge Hayward.

CARD/COLUMN	VAR. No.	TITLE	CODES	MARGINALS
1/1-3	1	Identification of observations (code numbers of all mills)	3 digit figure	
1/4-5		UNUSED	UNUSED	
1/6		UNUSED	UNUSED	
		Attributes and their importance:-		
1/7	2	Low initial cost	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement 5 Strongly disagree with the statement 6 Consider that the statement is not applicable	38 51 130 60 76
1/8		UNUSED	UNUSED	
1/9	3	Low running cost	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement 5 Strongly disagree with the statement 6 Consider that the statement is not applicable	120 97 86 36 16
1/10		UNUSED	UNUSED	
1/11	4	Short pay-off period	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement 5 Strongly disagree with statement 6 Consider that the statement is not applicable U N U S E D	43 57 143 58 42
		- 1 -		11

CARD/COLUMN	VAR. No.	TITLE	CODES	MARGINALS
1/13	5	Considerable saving of time	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement 5 Strongly disagree with statement 6 Consider that the statement is not applicable	41
1/14		UNUSED	UNUSED	
1/15	6	Considerable reduction in		
		dust	<pre>1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor dis- agree with statement 4 Disagree with state- ment 5 Strongly disagree with statement 6 Consider that the statement is not applicable</pre>	141 88 58 12 22
1/16		UNUSED	UNUSED	
1/17	7	Considerable reduction in noise	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement 5 Strongly disagree with statement 6 Consider that the statement is not applicable	24 49 96 28 87
1/18		UNUSED	UNUSED	
1/19	8	Considerable mechanical advantage	1 Strongly agree with statement 2 Agree with statement 3 Neither agree nor disagree with statement 4 Disagree with statement ment	138 90 77 18
		- 2 -	-	12

CARD/COLUMN	VAR. No.	TITLE	CODES	MARGINALS
1/19	8	Contd.	5 Strongly disagree with statement 6 Consider that the statement is not ap-	16
			plicable	. 20
1/20		UNUSED	UNUSED	·
1/21	9	Much easier to operate	1 Strongly agree with the statements	170
			2 Agree with the state- ment 3 Neither agree nor dis-	107
			agree with the state- ment 4 Disagree with the	51
		•	statement 5 Strongly disagree with the statement	15 9
		·	6 Consider that the statement is not ap-	
1/22		UNUSED	plicable U N U S E D	7.
1/23	10			•
1/23		Much greater flexibility	1 Strongly agree with the statements 2 Agree with the state-	88.
	-		ment 3 Neither agree nor dis-	74
	'		agree with the state- ment 4 Disagree with the	75
		_	statement 5 Strongly disagree with	55
			the statement 6 Consider that the	39
			statement is not ap- plicable	28
1/24		UNUSED	UNUSED	
1/25	11	Easily tried on a small scale	1 Strongly agree with	60
			the statements 2 Agree with the state-	
			ment 3 Neither agree not dis- agree with the state-	43
			ment 4 Disagree with the	51
			statement 5 Strongly disagree with	20
			the statement 6 Consider that the	116
		_	statement is not ap- plicable	69
		- 3 -		10

CARD/COLUMN	VAR. No.	TITLE	CODES	MARGINALS
1/26		UNUSED	UNUSED	
1/27	12	Very reliable in operation	1 Strongly agree with the statements 2 Agree with the state- ment 3 Neither agree nor disagree with the statement 4 Disagree with the statement 5 Strongly disagree with the statement 6 Consider that the statement is not ap- plicable	176 105 56 12 3
1/28		UNUSED .	UNUSED	,
1/29	13	Very easy to understand Innovation:-	1 Strongly agree with the statements 2 Agree with the statement 3 Neither agree not disagree with the statement 4 Disagree with the statement 5 Strongly disagree with the statement 6 Consider that the statement is not applicable 0 Not adopted	149 115 66 13 7 9
1/31-32	15	Year of adoption 1945-73	1 Adopted	261
1/33-34	16		2 Digit Figure 1 Up to 15 sacks/hr 2 16 - 30 " 3 31 - 45 " 4 46 - 60 " 5 61 - 75 " 6 76 - 90 " 7 91 -105 " 8 106-120 " 9 121-135 " 10 136-150 " 11 151-165 " 12 166-180 " 13 181-195 " BLANK Not answered	73 110 49 38 35 9 5 10 0 10 0 5
		- 4 -	•	14

CARD/COLUMN	VAR. No.	TITLE	CODES	MARGINALS
1/35	17	Engineer who installed the innovation (Most respondents seemed very sensitive about this and were reluctant to answer. This column	·	
		should not be included in analysis)	BLANK Not answered R Robinson S Simon Engineering M M I A G	123 44 83
L/36 - 58		UNUSED	8 Buhler O Others T No information UNUSED	7 11 84 7
17 59	18	Code for innovations	P - Pneumatic conveying B - Bulk Bins F - Flour Silos S - Short Surface System R - Reverse Jet Filter Dust Collectors	73 74 75 70
1/60	19	Code for Mill groupings:	A - Allied Flour Mills R - Rank, Hovis, McDougall S - Spiller French I - Independents	90 104 0 165
l/61 - 80		UNUSED	UNUSED	
		-		,
				·
		- 5 -		
				·
}				15