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SILAGE COMPETITION, 1957-58

By H. G. ELLIOTT, Assistant Superintendent of Dairying

IN 1957 the Australian Dairy Produce Board Pasture Improvement Committee (W.A.) sponsored a competition with a view to encouraging greater utilisation of pasture by the conservation of the spring surplus as silage. The committee has as its objective the encouragement of the making of a high protein silage suitable for cows in milk during the summer. The competition was judged in two sections:—

A—Quality, and B—The farmer's workmanship in ensiling and in feeding the silage to his cattle.

In Section A judging was carried out according to the following point scale.

	Points.
(1) Material ensiled, botanical composition	15
(2) Maturity of herbage	25
(3) Colour	10
(4) Aroma	10
(5) Protein	25
(6) pH	15
Total	100

In finalising judging however, it became evident that an allocation of points for pH would be misleading as it could be applied only on the assumption that there was a direct relationship between pH and the percentage of nutrients retained and therefore success in making. Consequently it was eliminated.

Section B was included in order to emphasise the need for good workmanship in making silage and for avoiding unnecessary labour in making and feeding. Improper methods can lead to loss of nutrients by fermentation and a loss of silage in bulk by drying, rotting, or moulding. Prizes in this section were offered according to the following methods:—

- (1) Pits or clamps (long).
- (2) Pits or clamps (baled).
- (3) Pits or clamps (chaffed).
- (4) Stacks (long).
- (5) Stacks (baled).

The point scale was:—

	Points.
(1) Wastage	50
(2) Methods of opening	25
(3) Methods of feeding	25
Total	100

The number of entries was very pleasing and was as follows:—

Section A—40.

Section B—

	Points.
(1) Pits or clamps (long)	6
(2) Pits or clamps (baled)	8
(3) Pits or clamps (chaffed)	8
(4) Stacks (long)	18
(5) Stacks (baled)	Nil
Total	40

Judging was carried out by Agricultural Advisers of the Dairy Division of the Department of Agriculture in their own districts and, as the prizes were awarded on a State-wide basis, some variation in interpretation was unavoidable but this is considered not to have caused any undue bias. The judges were Messrs. R. S. Sprivulis, A. W. Hobbs, B. Williams, A. L. Hamilton and J. Carberry.

PRIZE WINNERS

Section A.

	Points.
(1) N. V. Rose, Wilgarrup	81
(2) M. Flynn, Bunbury	80
(3) S. Dawson, Manjimup	76

Mr. Rose's entry was judged by Agricultural Adviser Mr. R. Sprivulis. It was made in a pit from long pasture herbage com-

prising *Phalaris tuberosa*, subterranean clover and some annual volunteer grasses. It was cut first, before flowering, and had a clean pleasant aroma and dark green colour. Its crude protein content was 19.9 per cent.

Mr. Flynn's entry was judged by Agricultural Adviser Mr. B. Williams. This entry was of oats and purple vetch and contained approximately 100 tons. It was ensiled in a pit on a sandy ridge in a central position on the farm. The quality was very good, scoring highly under each subsection. Crude protein was 18.5 per cent. Mr. Williams reported that Mr. Flynn attributes the maintenance of his milk output during the summer, in no small measure to the use of this silage. His sudan grass crop on which he was relying was only moderately successful and without the silage, milk output would have been reduced.

Mr. Dawson's entry was judged by Mr. R. Sprivulis, and comprised a half-cylindrical stack of chopped subterranean clover, Wimmera ryegrass and some cape-weed and other minor plants. It was cut at the flowering stage and had a clean pleasant aroma with dark green colour. The protein, 19.8 per cent. was very good.

Section B.

Some useful and interesting information has been supplied by judges in commenting on the judging of Section B. Unfortunately, however, the early resignation of one judge has resulted in no comments being available for entries in the Denmark Albany districts.

The winners of this Section were:—

Subsection—

- (1) Pits or clamps (long)—A. J. Chanter, Denmark.
- (2) Pits or clamps (baled)—Mr. M. Flynn, Bunbury.
- (3) Pits or clamps (chopped)—Mr. N. V. Rose, Wilgarrup.
- (4) Stacks (long)—Mr. W. Middleton, Denmark.

GENERAL COMMENT

As a means of stimulating interest in making silage of a quality suitable as a protein supplement to cows in milk during the summer months the competition was very successful.

It has proved also that silage of high protein content can be made but also has demonstrated that much silage, while of value for maintenance, is of little value as a protein supplement for cows in milk. The percentage of crude protein ranged from 7.2 per cent. to 19.9 per cent.

An examination of the tables attached will allow each competitor not only to know his point allotment but also the percentage of crude protein in the sample taken for analysis. The data is valuable, even to indicate that much protein and other nutrients have been lost in ensiling. It is difficult to believe for example, that percentages of the order of 8.6 per cent. or 7.2 per cent. of crude protein in silage are reliable guides to the composition of the original herbage.

This is not the place to set out details of successful silage making but the following points are important. Those who wish to receive more detailed information should consult their local Agricultural Advisers.

- (1) The objective of silage making is to conserve the maximum amount of nutrients in the cut herbage in a succulent and palatable form.
- (2) No more nutrients can be obtained in silage than are in the original herbage at cutting.
- (3) Considerable losses of nutrients can and do occur in making.
- (4) Good herbage is necessary to make good silage.
- (5) Losses of nutrients can be reduced by the promotion of rapid acidification in order to stop fermentation before too great changes have occurred.
- (6) Rapid production of acid is encouraged by having a good herbage mixture of approximately 70 per cent. moisture content and well consolidated so that little air is retained.
- (7) Weighting or covering the surface or the production of a seal by rolling will reduce physical wastage by spoilage, i.e., rotting, mouldiness, etc.
- (8) The fact that stock will eat spoiled silage does not make it good.

- (9) Broadly—herbage for silage should be cut early, not later than flowering, wilted slightly, and stacked rapidly with good consolidation. Techniques will vary with the composition of the herbage and climatic conditions.

JUDGES' COMMENTS

On the question of workmanship, wastage, etc., some very good results were reported by the judges. A typical comment was:—

Wastage.—As would be expected, large variations occurred in the degrees of wastage. Best results seemed to have been obtained with rectangular stacks using a grassland forage harvester. The material harvested by this method seemed to pack down tightly and surface wastage was reduced to a minimum without any elaborate treatment of the stack. Depth of wastage in the three entries ranged from approximately 2 in. to a maximum of 3½ in. to 4 in. The most wastage occurred in a bun-shaped stack made from a very grassy paddock using a buckrake, and in a wedge formed by the same method. Half pits of baled silage also lost points due to surface wastage although little waste occurred within the stack.

Mr. Hamilton, whose comments are above, referred to convenience in feeding as being a major consideration. He expressed the view that farmers are still somewhat loth to make silage because of the heavy task which can be imposed in getting it from the silo to the cattle. The variety of methods seen indicates that farmers' ingenuity will overcome this problem.

Mr. Hamilton further said there is an obvious advantage in the recommended method of stacking bales in pits so that a continuous line of bales is placed across the stack as compared with the method of interlocking bales, both from the point of view of ease of removal and of preservation of a straight face as each day's feeding is carried out. Two competitors, he said, lost points due to the ragged face left after interlocked bales were removed in opening. He allotted additional points to baled entries over other methods

because of ease in handling bales in daily feeding compared to loose material.

On the other hand, Mr. B. Williams expressed himself as follows:—

In my opinion it is questionable whether the convenience of baled herbage in filling the pit justifies the extra difficulty met in feeding it out.

It is obvious that opinion is not yet unanimous regarding the advantages of any one method of making silage. The tendency of the chopped silage harvested with a forage harvester to permit a shallow seal on the surface is of considerable interest. This will be of greatest value if such material can be conserved in silos with a reasonable depth. A shallow seal spread over a large surface area in comparison to volume may not achieve any advantage.

The methods used by Mr. A. Read of Bridgetown in making silage from forage harvested material and later in feeding it to his cattle are of interest. An elongated bun stack was made using subterranean clover and ryegrass. The quality of the silage was not high, as the material was cut late and colour and aroma were poor while the crude protein content 12.4 per cent. was a little too low.

The dumped herbage was rolled by the tractor resulting in a moist seal being formed from the lacerated and bleeding material.

Under the seal the silage was uniform. In opening, a part of the seal was lifted and the silage cut with a hay-knife. A tractor and trailer were used to take it to the stack. The tractor was allowed to run downhill in low gear without direct control while the farmer threw off the silage.

Most entrants used some labour-saving methods but relied principally on forking on to a conveyance and then forking back to a paddock.

Many used hay-knives to cut slabs and most relied on forks where the material was ensiled long or chaffed.

Other typical comments by judges were:—

R. Sprivulis. All entrants except one make silage as a regular task and if it had not been for the previous dry spring, more would have been made. There was increasing interest in the use of forage harvesters.

It was evident that where good succulent material was properly compressed wastage was low.

Farmers generally were impressed with the value of silage in feeding more particularly from before calving and while pastures were getting away in the Autumn.

A. W. Hobbs. A feature of the best entries was the small amount of wastage. The worst, however, were

cut too late and consolidation was insufficient. Some as a consequence were mouldy. The majority, however, were quite palatable. Feeding started in March mainly to cows both in milk and dry.

POINT ALLOTMENTS

Details of the point allotments in the various sections are as follows:—

Section A 1. PIT OR CLAMP LONG

Name and Address	Crude Protein per cent.	Material Ensiled (15)	Maturity of Herbage (25)	Colour (10)	Aroma (10)	Protein (25)	Total (85)
S. J. Mullins, (1) Waroona	16.0	12	19	6	8	19	64
V. and R. Goode, (2) Brunswick	13.4	14	20	6	6	16	62
V. and R. Goode, (1) Brunswick	11.4	14	21	7	7	12	61
A. J. Chanter, Denmark	12.2	12	18	7	7	14	58
Leaver Bros., Byford	13.5	9	20	5	4	16	54
G. S. Donaldson, Northcliffe	8.6	10	13	3	3	7	36

Section A 2. PIT OR CLAMP BALED

Name and Address	Crude Protein per cent.	Material Ensiled (15)	Maturity of Herbage (25)	Colour (10)	Aroma (10)	Protein (25)	Total (85)
M. Flynn, Bunbury	18.5	14	24	10	9	23	80
S. Garstone, Cowaramup	17.6	12	20	8	8	22	70
W. K. Barnes (1), Bengier	15.1	10	18	6	8	20	62
C. Summerfield, Witchcliffe	13.5	10	18	7	6	17	58
W. T. Mitchell, Coolup	11.3	13	15	6	6	12	52
W. J. Rowe & Son, Witchcliffe	10.1	13	14	5	7	10	49
W. K. Barnes (2), Bengier	9.4	9	17	6	7	8	47
Brownes Ltd., Coolup	9.5	12	16	5	6	8	47

Section A 3. PIT OR CLAMP CHOPPED

Name and Address	Crude Protein per cent.	Material Ensiled (15)	Maturity of Herbage (25)	Colour (10)	Aroma (10)	Protein (25)	Total (85)
N. V. Rose, Wilgarrup	19.9	12	25	10	10	24	81
S. Dawson, Manjimup	19.8	12	20	10	10	24	76
J. O'Neill, Hithergreen	15.1	13	20	8	8	20	69
F. J. Oates, Abba River	13.0	15	22	7	8	16	68
C. Semmens, Abba River	13.6	15	22	6	5	17	65
C. Waugh (2), Manjimup	13.8	10	20	10	8	17	65
N. U. Moltoni, Manjimup	16.7	12	15	5	5	21	58
A. Read (2), Bridgetown	7.2	14	22	8	8	4	56
C. Waugh (1), Manjimup	13.2	10	15	7	7	16	55

Section A
4. STACKS LONG

Name and Address	Crude Protein per cent.	Material Ensiled (15)	Maturity of Herbage (25)	Colour (10)	Aroma (10)	Protein (25)	Total (85)
S. J. Mullins (2), Waroona	14.6	13	22	8	8	21	72
A. J. Phillips, Coolup	16.7	10	21	6	7	21	65
N. Barge, Nillup	15.7	12	21	4	6	20	63
W. Middleton, Denmark	14.7	12	18	7	7	19	63
H. D. Styles (1), Manjimup	15.3	8	18	8	7	20	61
Sale Bros., Balingup	12.5	14	16	8	7	15	60
Angel & Son (2), Manjimup	13.6	7	20	7	8	17	59
E. F. Howard, Bridgetown	10.4	12	18	8	7	10	55
F. Thatcher, Byford	11.6	10	20	5	7	13	55
Angel & Son (1), Manjimup	12.8	10	15	7	7	15	54
W. Hamilton, Jardee	15.5	10	13	5	6	20	54
N. L. Marsh, Mundijong	9.3	11	20	6	8	8	53
A. Read (1), Bridgetown	12.4	14	15	4	3	14	51
J. M. Oldfield, Forest Grove	11.7	7	15	7	7	13	49
H. D. Styles (2), Manjimup	15.2	10	13	3	3	20	49
D. R. Hodgson, Waroona	9.7	10	17	5	6	9	48
F. E. Bailey, Denmark	15.8	5	9	2	2	20	38

Section B
1. PITS OR CLAMPS LONG

Name and Address	Wastage (50)	Method of Opening (25)	Convenience in Feeding (25)	Total (100)
A. J. Chanter, Denmark	40	23	22	85
S. J. Mullins, Waroona	43	21	14	78
Leaver Bros., Byford	42	20	14	76
V. and R. Goode (1), Brunswick	43	18	13	74
V. and R. Goode (2), Brunswick	40	19	15	74
G. S. Donaldson, Northcliffe	30	20	15	65

Section B
2. PITS OR CLAMPS BALED

Name and Address	Wastage (50)	Method of Opening (25)	Convenience in Feeding (25)	Total (100)
M. Flynn, Bunbury	40	18	20	78
W. K. Barnes, Benger	37	21	15	73
W. K. Barnes, Benger	38	20	15	73
S. Garstone, Cowaramup	35	18	20	73
W. T. Mitchell, Coolup	36	20	15	71
Brownes Ltd., Coolup	38	17	13	68
C. Summerfield, Witchcliffe	30	15	20	65
W. S. Rowe & Son, Witchcliffe	30	12	20	62

Section B
3. PITS OR CLAMPS CHOPPED

Name and Address	Wastage (50)	Method of Opening (25)	Convenience in Feeding (25)	Total (100)
N. V. Rose, Wilgarrup	47	25	15	87
A. Read (2), Bridgetown	45	23	18	86
F. J. Oates, Abba River	45	20	15	80
J. O'Neill, Hithergreen	41	22	15	78
C. Semmens, Abba River	40	22	15	77
S. Dawson, Manjimup	40	20	15	75
C. Waugh (1), Manjimup	40	20	15	75
C. Waugh (2), Manjimup	40	20	15	75
N. H. Norton, Manjimup	35	20	15	70

Section B
4. STACKS LONG

Name and Address	Wastage (50)	Method of Opening (25)	Convenience in Feeding (25)	Total (100)
W. Middleton, Denmark	40	23	20	83
S. J. Mullins (2), Waroona	46	20	14	80
E. F. Howard, Bridgetown	40	21	18	79
Sale Bros, Balingup	42	20	17	79
F. Thatcher, Byford	43	20	14	77
N. L. Marsh, Mundijong	40	20	13	73
Angel & Son (1), Manjimup	40	15	15	70
D. R. Hodgson, Waroona	38	18	14	70
H. D. Styles (1), Manjimup	35	20	15	70
A. J. Phillips, Coolup	35	18	14	67
Angel & Son (2), Manjimup	35	15	15	65
N. Barge, Nillup	28	18	15	61
F. E. Bailey, Denmark	20	20	20	60
W. Hamilton, Jardee	30	15	15	60
J. H. Oldfield, Forest Grove	25	20	15	60
H. D. Styles (2), Manjimup	25	20	15	60

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METHOD:

Cream butter, add honey and brown sugar, then add remainder of ingredients in order given.

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