



Department of  
Primary Industries and  
Regional Development

## Journal of the Department of Agriculture, Western Australia, Series 3

---

Volume 3  
Number 2 March- April, 1954

Article 22

---

3-1954

### Whale by-products for pig feeding

K M. Hope  
*Department of Agriculture*

V E. Weston  
*Department of Agriculture*

P Garstone  
*Department of Agriculture*

Follow this and additional works at: [https://library.dpird.wa.gov.au/journal\\_agriculture3](https://library.dpird.wa.gov.au/journal_agriculture3)

---

#### Recommended Citation

Hope, K M.; Weston, V E.; and Garstone, P (1954) "Whale by-products for pig feeding," *Journal of the Department of Agriculture, Western Australia, Series 3*: Vol. 3: No. 2, Article 22.  
Available at: [https://library.dpird.wa.gov.au/journal\\_agriculture3/vol3/iss2/22](https://library.dpird.wa.gov.au/journal_agriculture3/vol3/iss2/22)

This article is brought to you for free and open access by the Agriculture at Digital Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 3 by an authorized administrator of Digital Library. For more information, please contact [library@dpird.wa.gov.au](mailto:library@dpird.wa.gov.au).

# WHALE BY-PRODUCTS FOR PIG FEEDING

By K. M. HOPE, B.Sc. (Agric.), Agricultural Adviser,  
V. E. WESTON, H.D.D., Manager, Denmark Research Station, and  
P. GARSTONE, M.D.A., Pig Husbandry Instructor, Muresk Agricultural College.

**P**IG feeding experiments at Denmark Research Station and Muresk Agricultural College in 1951 and 1952, were designed to investigate the value of whalemeal and whale solubles in comparison with meatmeal as protein supplements to a crushed wheat ration. Large quantities of whale solubles are available and, used efficiently, could greatly reduce the present shortage of protein supplements.

From the pig raiser's viewpoint the most important findings are:—

1. Whalemeal and whale solubles can be fed successfully to pigs.

2. In the trial at Denmark in 1951 whalemeal proved equal to Midland meatmeal.

3. In the same trial and others carried out at the Muresk Agricultural College, whale solubles proved a satisfactory protein supplement but was slightly inferior to Midland meatmeal and whalemeal.

4. The best feed conversions (from 3 to 3½ lb. of feed per lb. of liveweight gain) were obtained from rations containing a high proportion of protein. These rations contained the equivalent of ½ lb. Midland meatmeal per pig per day from weaner to baconer or ½ lb. whalemeal or 9oz. of whale solubles. These supplements were fed with crushed wheat used at the rate of 1 lb. per day per each 30 lb. liveweight of the pigs.

This provides a ration in which the crude protein content is gradually reduced from 18% when the pigs are 60 lb. to 13% when they are 180 lb. liveweight.

5. Whale solubles were inferior to meatmeal when small quantities were used in conjunction with dried brewer's grains to give a combined animal protein—plant protein supplement to crushed wheat.

6. The combined whale solubles—meatmeal mixtures equalled Midland meatmeal as protein supplements to crushed wheat.

7. Whale solubles can completely replace meatmeal after 100 lb. liveweight without any loss in performances.

8. Both whalemeal and whale solubles can be fed as the sole protein supplement to a crushed wheat ration from weaner to baconer without any harmful effect on the quality of pigmeat produced. All pigs presented attractive carcasses which graded well on appraisal and were highly commended by bacon curers.

## DENMARK EXPERIMENT, 1951

All groups on standard crushed wheat ration at 1 lb. per 30 lb. liveweight plus following protein supplements. Pigs fed in pens.

A. 8oz. Midland meatmeal per pig per day.

B. 8oz. Babbage Island whalemeal per pig per day.

C. 6oz. Point Cloates whalemeal per pig per day.

D. 8oz. Babbage Island whale solubles per pig per day.

Because of the low calcium and phosphorus contents of whale solubles and Point Cloates whalemeal (see analyses), 2 lb. of bonemeal was added to each 100 lb. of the crushed wheat ration fed to groups C and D which brought the calcium and phosphorus levels closer to Group A.

To illustrate the effect of no protein supplement to crushed wheat, the results of Groups 1 and 4 in a pig feeding trial by Cullity and Dixon (1943) are given alongside the 1951 results.

Group 1 received 8oz. Midland meatmeal per pig per day as a supplement to the crushed wheat ration. Group 4 received crushed wheat only.



**DENMARK 1951 (WITH MURESK 1943 FOR COMPARISON).**

	Group A. Meatmeal.	Group B. Babbage Whalemeal.	Group C. Pt. Cloates Whalemeal.	Group D. Babbage Whale Solubles.	Group 1 (1943) as 1951 Group A.	Group 4 (1943) Crushed Wheat only.
No. of pigs	4	4	4	4	6	6
Commencing weight (lb.)	50.75	50.75	51.25	50.25	41.8	40.5
Finishing weight (lb.)	179	171.5	173.25	163.5	193.7	79.75
Increase (lb.)	128.25	120.75	122	113.25	151.9	39.25
Days on trial	98	98	98	98	126	126
Rate per day gain (lb.)	1.31	1.23	1.25	1.16	1.21	0.31
Feed conversion (lb. feed per lb. wt. gain)	3.06	3.24	3.12	3.48	3.1	6.6
Carcass score (max. 100 pts.)	70	73	72	67	....	....
Iodine No. of fat (range)	54-61	54-58	56-61	54-59	....	....

In the Smithfield or Hammond system of appraisal a pig scoring 60 points is a good commercial pig.

**MURESK EXPERIMENT, 1951**

All groups on standard crushed wheat ration plus following protein supplements. Pigs hand fed in paddocks.

- A. 8oz. Midland meatmeal per pig per day.
- B. 2oz. Midland meatmeal plus 4oz. dried brewers grain per pig per day.
- C. 2oz. Whale solubles plus 4oz. dried brewers grain per pig per day.
- D. 4oz. Whale solubles per pig per day.

Two pounds of bonemeal were added to each 100lb. crushed wheat fed to Groups B, C and D to bring calcium and phosphorus levels closer to Group A.

It was apparent from the comparison of Groups B and C that Midland meatmeal

was a better animal protein supplement to dried brewers grains than was whale solubles.

Comparison of Groups A and D in the above trial with Groups A and D in the 1951 Denmark trial indicated that reduction of the amount of whale solubles from 8 ounces to 4 ounces per pig per day resulted in reduced growth and lowered efficiency of feed conversion.

The comparison of Groups A and B suggests that the lower protein level in B may have caused the reduced efficiency of feed conversion. The higher carcass score in Group A was due to the excellent eye muscle and streak development which is considered to be a result of the higher protein levels in their ration.

**MURESK EXPERIMENT, 1952**

All groups on standard crushed wheat ration plus following protein supplements. Pigs hand fed in paddocks.

**MURESK, 1951.**

	Group A. Meatmeal.	Group B. Meatmeal plus Brewer's Grain.	Group C. Whale Solubles plus Brewer's Grain.	Group D. Whale Solubles.
No. of pigs	5	5	5	5
Commencing weight (lb.)	65.2	65.7	64	63.8
Finishing weight (lb.)	176.8	174.7	184.6	179.6
Increase (lb.)	111.6	109	120.6	115.8
Days on trial	84	84	107	107
Rate per day gain (lb.)	1.33	1.30	1.13	1.08
Feed conversion (lb. feed per lb. l. wt. gain)	3.6	3.85	4.07	4.20
Carcass score (max. 100 pts.)	76	67	61	61
Iodine No. of fat (range)	55-58	53-56	56-58	56-60



A. 8oz. Midland meatmeal per pig per day.

B. 8oz. Meatmeal per pig per day up to 100lb. liveweight.

8oz. Whale solubles per pig per day from 100 to 180lb. liveweight.

C. 6oz. Meatmeal plus 2oz. whale solubles per pig per day up to 100lb. liveweight.

2oz. Meatmeal plus 6oz. whale solubles per pig per day from 100lb. liveweight to 180lb. liveweight.

D. 9oz. Whale solubles per pig per day.

Two pounds of bonemeal was added to each 100lb. of crushed wheat fed to Group D. This same addition was made to Groups B and C after pigs reached 100lb. liveweight.

Additional trials are being carried out to determine whether whale solubles proved satisfactory after 100lb. liveweight because protein requirements (Quantity and/or Quality) after that stage are lower than the levels we have been providing in our rations.

#### Acknowledgments.

Thanks are due to Watsons Foods Pty., Ltd., for permitting use of factory facilities at Spearwood for the carcass appraisals and to the factory staff for their ready co-operation. The whale solubles were donated by the Australian Whaling Commission and the dried brewers' grains by David Gray & Co., Ltd.

Reference: Cullity and Dixon (1943), Journal Department of Agriculture, Vol. XX (2nd series), pp. 63-77.

MURESK, 1952.

	Group A. Meatmeal.	Group B. Meatmeal and Whale Solubles.	Group C. Meatmeal and Whale Solubles.	Group D. Whale Solubles.
No. of pigs	4	4	4	4
Commencing weight (lb.)	61.5	60.75	59	57.5
Finishing weight (lb.)	182.25	180.5	180	170
Increase (lb.)	120	119	121	112.5
Days on trial	82	82	82	82
Rate per day gain (lb.)	1.46	1.45	1.47	1.36
Feed conversion (lb. feed per lb. l.w.t. gain)	3.26	3.33	3.28	3.47
Carcass score (max. 100 pts.)	69½	68	66½	66½

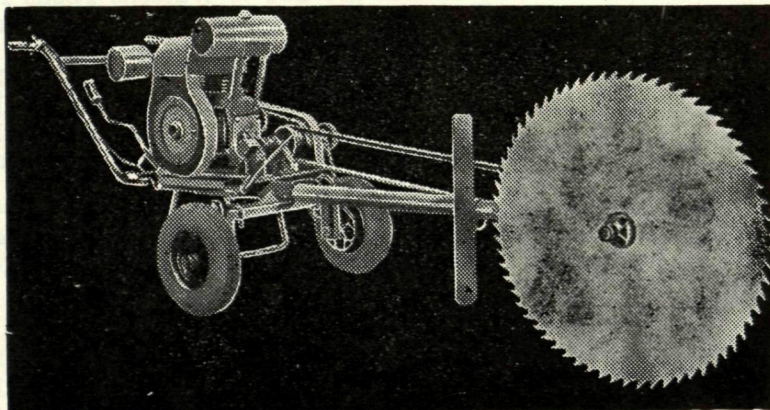
#### ANALYSES OF THE PROTEIN SUPPLEMENTS AND CRUSHED WHEAT.

Percentage Compositions.

	Midland Meatmeal.	Babbage Island Whale Solubles.	Babbage Island Whalemeal.	Point Cloates Whalemeal.	Dried Brewer's Grain.	Bonemeal.	Crushed Wheat.
Moisture	7.9	49.4	6.30	6.15	10.0	5.8	10.9
Total Solids	92.1	50.6	93.70	93.85	90.0	94.2	90.1
Ash	9.43	4.55	29.2	2.73	3.11	65.92	1.52
Crude Protein	56.5	44.4	56.4	74.1	17.5	24.6	10.2
Crude Fat	16.9	0.5	5.4	15.4	2.5	4.2	1.5
Crude Fibre	4.0	Nil	0.5	0.4	14.8	0.6	2.7
Crude Carbo- hydrates	5.3	1.2	2.2	1.2	52.9	....	73.2
Calcium Ca.	1.99	0.47	11.1	0.16	0.29	24.5	0.029
Phosphorus P.	1.17	0.404	4.95	0.41	0.38	11.2	0.239
Salt NaCl	1.32	1.55	0.61	1.03	....	0.18	....
Iodine No. of fat (Wijs)	53.3	75.6	98.4	96.2	....	....	....



# The "TREECLEARER" Portable Saw is the farmers' favourite

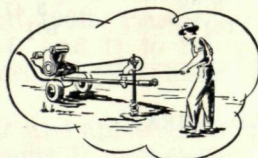


## Here's Why!

- ★ The strongly built, reliable air-cooled four-stroke Douglas engine has power in reserve for all purposes. An oilbath cleaner keeps out sawdust and dirt.
- ★ Separate clutches for sawhead and self-drive give ease of operation and provide complete safety factor.
- ★ Self-drive on both wheels makes the machine easy to work even in the most difficult country. A range of wheel sizes is available to suit all needs.

- ★ Smooth veebelt drive provides safe working and ease of maintenance.
- ★ Well constructed sawhead with heavy duty roller bearings provide complete safety to the operator.
- ★ The "Treeclearer" is built in W.A. for W.A. Conditions and embodies the knowledge gained in 27 years' experience in the construction of this type of machinery.
- ★ Only the very best quality materials are used and a rigid system of inspection ensures that every machine reaches the high standard set. On-the-spot factory service and advice is immediately available to all purchasers.
- ★ Direct sale from Factory to User keeps prices to a minimum.

### ATTACHMENTS INCLUDE—



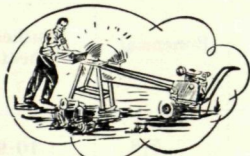
POST HOLE DIGGER



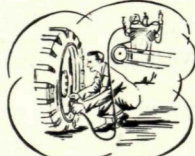
ELECTRIC DRILL



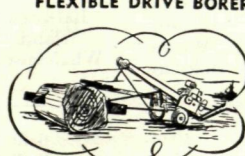
FLEXIBLE DRIVE BORER



SLIDING TABLE SAW BENCH



AIR COMPRESSOR



DRAG SAW

## Other Attachments

Power Take-off  
Concrete Mixer  
Saw Gulleter

Write for Free  
illustrated  
Brochure to

# Treeclearing Machinery Division

OF GEORGE MOSS PTY. LTD. 331 MURRAY ST. PERTH. G.P.O. BOX R1288 PHONE BA9621