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AGRICULTURAL EXPERIMENT STATION

NEW HAVEN, CONN.

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FEEDS, SEEDS AND WEEDS.

By E. H. Jenkins.

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FEEDS, SEEDS AND WEEDS.

BY E. H. JENKINS.

There are a number of mixtures sold as feeds in this State which contain large quantities of seeds of undesirable and pestilent weeds of which a considerable portion are alive and will, under proper conditions, promptly germinate and grow.

The weed seeds are not always quickly detected by casual inspection, because they are variously mixed with chaff and oat hulls, with linseed, barley and corn products and are often mixed or smeared with molasses.

These facts are naturally not mentioned in the statements of composition, yet they are more important to the buyer than the chemical analysis.

A moderate food value may be granted to *ground* weed seeds, or to some species of them, but it is very doubtful if small whole seeds are broken up and digested by the animal.

It has been proved that fermenting manure kills many weed seeds when they are kept in it for some time, but common experience fully justifies the belief that the farm may be stocked with weeds which come along with the manure.

Weed seeds which are scattered abundantly wherever feed and feed residues are scattered, will surely make their appearance in the fields. Thus charlock appeared last year quite abundantly on the station land, where it had not been seen for twenty-six years at least. On searching for the cause, it appeared that the junkos or snowbirds had been fed with wheat screenings on a flat roof in the neighborhood during a severe winter and the charlock seeds in the screenings had no doubt been blown from the roof to the lawn.

Within the last biennial period we have found weed seed very abundant in the feeds named in the following table.

This table shows in sufficient detail the results of a careful examination of the samples, made by Miss M. H. Jagger of this station.

There are given the total number of seeds present in each pound of the mixture or "feed" and the number of each of the four

NUMBER AND VITALITY OF WEED SEEDS

	Molasses grains, Mueller's.	International Sugared Dairy Feed.	Molac Dairy Feed.		
Cost per ton at date of sampling	$28.00	$30.00	$29.00	$31.00	$27.00
Station No.	19874	21577	19860	19847	21580
Total number of weed seeds per pound	11528	7800	5234	29324	6030
Pig weeds, number per pound	3364	4400	2217	11988	2265
" germinating	1285	1188	199	2397	521
Knot weeds, number per pound	1814	1160	705	648	2355
" germinating	522	none	*	*	none
Charlock and black mustard, number per pound	378	320	300	1490	362
" germinating	*	*	*	905	*
Bottle grasses, number per pound	5443	1520	1612	13446	670
" germinating	3810	912	none	8443	402
Other weed seeds	529	400	400	1652	378

* Undetermined. † None found.

commonest and most dangerous kinds of weeds. The vitality of most of them was determined and is given in the table.

Seeds of the false foxtails or bottle grasses (*Chætochloa*), pigweeds or lambs' quarters (*Chenopodium*), knot weed or bindweed (*Polygonum*), are found abundantly in all the feeds named; black mustard and charlock (*Brassica*) are abundant in most of them, and ragweed (*Ambrosia*), the worthless panies (*Panicum capillare, filiforme and sanguinale*), sorrel and dock (*Rumex*), the common and Canada thistle and catchfly (*Silene*) are also found in most of them.

Every pound of each of these mixtures brings to the farm from five thousand to eighty-six thousand seeds, of which, in some cases a hundred, in others more than twenty-two thousand are alive.

Certain manufacturers claim to destroy the vitality of the weeds which they mix with feed, but in no one of those above reported has even this measure of protection to the purchaser been thoroughly done. It has been apparently attempted only in case of the sucrene feeds.

IN ONE POUND OF THE FEEDS NAMED.

Molac Horse Feed.	Sucrene Horse Feed.		Sucrene Dairy Feed.		H. J. Flax Feed.		
$26.00	$31.00	$32.00	$30.00	$28.00	$25.00	$28.00	$25.00
19855	19876	21497	19877	21486	19703	19761	21436
22224	8574	27100	8160	10360	48663	21267	86000
2872	2509	20680	2786	7120	31752	10231	41080
603	27	207	128	99	13814	2250	9859
1512‡	1622	1600	1101	1440	†	705	1040
453	none	*	none	*	----	*	*
8316	453	160	192	80	1749	1159	1720
3476	*	*	*	*	*	598	774
5241	3458	4240	3466	1360	14320	8618	36440
2568	103	509	311	453	6444	4136	13118
1159	532	440	615	360	842	554	5720

‡ Besides 3124 seeds of other species of Polygonum.

All of these weeds are characteristic of grain screenings which are the refuse separated from grain, in order to make the latter marketable or fit for milling. These screenings vary a good deal in quality. Thus an analysis recently made here of wheat screenings showed about 33 per cent. of flax and shrunken cereal, 15 per cent. of foxtails, 8 per cent. of bindweeds and pigweeds, 15 per cent. of weed seeds of other species and 21 per cent. of dust, broken seed and sand. Even such a mixture is much better than many others which often contain very little, if any, wheat or flax.

An average price for screenings is $12.00 a ton in Chicago or $16.00 in Connecticut.

Mixed with molasses and chaff or hulls, and in some cases with really good feed materials, some of them sell at prices which are nearly as high as those paid for first-class feeds.

Made in considerable part of inferior materials and charged with weed seeds, they are dangerous on the farm.

A sample of Barley Sprouts, sent by a prospective buyer, contained:

Barley sprouts	70.5	per cent.
Weed seeds	29.5	" "
	100.0	

The weed seeds were

Corn Cockle (*Vaccaria*)	14.0	per cent.
Wild oats (*Avena fatua*)	10.0	" "
Bindweed (*Polygonum*)	2.8	" "
Four other species of weeds	2.7	" "
	29.5	

Further particulars regarding the presence of weed seeds in feeds will be found in Bulletins 156 of the Maine Station and 131 of the Vermont Station.