

compounds to form enamel takes place within an orderly manner in a tubular structure of fibrillar composition.

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#### ALFALFA SEED MADE PERMEABLE BY HEAT

A SERIES of experiments with alfalfa seed carried on since June, 1926, shows that moderate heat will change the permeability in a short time.

Practically all lots of alfalfa seed, both machine and hand threshed, show some impermeable seed. The amount of such seed in machine-threshed lots varies from 5 to 65 per cent. and in hand-threshed lots from 20 to 100 per cent. Various methods have been devised by other workers for treating alfalfa seed to cause the impermeable ones to germinate at once, but most of these methods are immediately injurious to the permeable seed and some are harmful to both permeable and impermeable seed. Further, such treatments injure the keeping quality of the seed.

The writer's experience during fifteen years shows that most impermeable alfalfa seeds will become permeable in storage in four years and that seeds that do not change in three years remain practically unchanged for at least three years more. However, the permeable seeds of alfalfa are comparatively short lived, so that the germination of originally impermeable seeds does not compensate for the death of originally permeable seeds unless the sample when fresh contains 40 per cent. or more of impermeable seed.

By the action of moderate heat this change can be brought about in a few hours. Hand-threshed seed which originally had 80 per cent. impermeable seeds, had after treating with dry heat at 45° C. for one hour only 53 per cent. of impermeable seed, while the average of a large number of machine-threshed samples showed that two hours at 60° C. dry heat increases the permeable seed from 65 to 92 per cent. without reducing the percentage of live seed. Similar reduction of impermeable seed resulted from considerably higher temperatures for even longer time without appreciable reduction in the percentage of live seed. Temperatures below 50° C. have little effect on the impermeable seed, even when continued for eight hours. The best results so far have been secured at 75° C. for periods varying from three to six and one half hours. The highest test gave a germination of 94 per cent., hard seed 5 per cent. with treatment for six hours at 75° C. Tests of heated seeds after five months' storage show no loss of vitality.

BOTANICAL SECTION,  
COLORADO EXPERIMENT STATION

ANNA M. LUTE

#### THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE ANNUAL REPORT OF THE SECRETARY- TREASURER OF THE PACIFIC DIVISION

(September 30, 1926)

##### Membership

The following tabulation shows the enrollment for the years indicated:

1921 .....	990	1924 .....	1,342
1922 .....	972	1925 .....	1,498
1923 .....	1,135	1926 .....	1,471

##### Financial Statement for Fiscal Year ending September 30, 1926

Cash balance, forwarded from Oct. 1, 1925.....	\$1,715.51
Receipts during the year:	
From permanent secretary's office.....	\$1,385.00
From affiliated societies.....	145.00
From dues and fees.....	425.00
	<u>1,955.00</u>
	\$3,670.51

##### Expenditures during the year:

Dues remitted to permanent secretary's office..	\$ 240.00
Supplies .....	34.80
Postage and supplies.....	52.50
Telephone and telegrams.....	13.07
Salary .....	900.00
General expense .....	5.00
Travel expense .....	20.37
Office assistance .....	370.00
Membership campaign .....	32.00
Savings account .....	1,500.00
Cash balance, Oct. 1, 1926.....	512.77
	<u>\$3,670.51</u>

##### Assets: Balance Sheet, September 30, 1926

Equipment .....	\$ 253.37
Savings account (Crocker First National Bank) .....	1,531.72
Cash on hand.....	512.77
	<u>\$2,297.86</u>

##### Liabilities:

Permanent secretary's office.....	\$1,902.77
Interest, savings account.....	31.72
Investment .....	253.37
Sundry creditors .....	110.00
	<u>\$2,297.86</u>

##### Analysis of Disbursements

Supplies .....	\$ 34.80
Postage and supplies .....	52.50
Telephone and telegrams .....	13.07
General expense .....	5.00
Travel expense .....	20.37
Office assistance .....	370.00
Salary .....	900.00
Membership campaign .....	32.00
	<u>\$1,427.74</u>

These disbursements were from funds derived as follows:

Affiliated societies .....	\$ 145.00
Entrance fees .....	185.00
From permanent secretary's office .....	1,097.74
	<u>\$1,427.74</u>

(Signed) W. W. SARGEANT,  
Secretary-Treasurer