EFFECT OF EXPOSURE OF GERM ON QUALITY OF STORED SHEARED SEED

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Seedballs containing only one germ were selected from representative samples of sheared seed which had been stored for approximately one and two seasons. These seedballs were divided into four classes: 1, Random sample containing one germ without regard to injury or exposure; 2, containing one unexposed germ; 3, containing one exposed germ with no visual sign of injury; 4, containing one exposed germ with some indication of injury. These four classes of the two lots of seed were germinated in the Minnesota germinator at 86° F. for 14 days. The sprouts were divided into two classes: 1, Whole uninjured sprouts capable of producing normal plants; and 2, those sprouts which were injured in a manner such that the radicle or plumule were not complete and the sprouts not capable of producing a normal plant. These latter sprouts were designated as partial sprouts. The test was conducted during November, 1943. The seed stored for two seasons was of the Midwest 4-41 variety which was sheared and stored at Sheridan during February 1942. At that time this sheared seed had a germination of 70 percent. The seed stored for one season was of the Midwest 4C-42 variety which was sheared and stored at Grand Junction during March, 1943. At that time this sheared seed had a germination of 78 percent. Detail data on the germination of only the single germed seedballs at the time of shearing is not available. The following table shows the comparison for exposed and not exposed germs after having been stored for one and two seasons.

Table 1.- Effect of exposure and injury on the germination of single-germed seed.

Variety	Class	Seasons stored	Exposure of germs	Injury of germs	Sprouts Whole	Partial	Total
MW 4-C-42		None	Original sheared seed				78
	1	One	Random sample		60	4	64
	2	One	No	No	60	10	70
	3	One	Yes	No	64	14	78
	4	One	Yes	Yes	27	38	65
MW 4-41		None	Original sheared seed				70
	1	Two	Random sample		50	4	54
	2	Two	No	No	56	2	58
	3	Two	Yes	No	54	18	72
	4	Two	Yes	Yes	24	23	47

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Comparing the exposed and not exposed uninjured germs, Class 2 and 3, for both the one and the two seasons storage, there is little difference in the number of whole sprouts produced. This would indicate that exposed germs do not lose their vitality any faster than non-exposed germs during one or two seasons of proper storage. Comparing the injured and not injured exposed germs, Class 3 and 4, the data show large differences in the number of whole sprouts, indicating that germs injured in the shearing process lose their vitality. However, the proportion of injured germs in the sheared seed is very low as indicated by the small differences between the single-germ random samples and the no exposure, no injury single-germ samples, Class 1 and 2.