Expt. 45 A.

DWELLINGUP.

Jarrah Seed - Viability & Losses in the Field.

Aim. To determine (a) the loss of viability of seed between seedfall and germination.
and (b) the loss of seed between seedfall and Winter germination by insects and small mammals.

Locality. Dwellingup - see sketch map.

Date. To be commenced in November 1965. 4/1/66 EXP. LAID DOWN 4/1/66.

Layout. 3 x 2^2 factorial, 3 replications. 100 sound seeds per treatment unit.

Treatments. A To test losses:-

L_1 (i). Seed contained in flywire envelopes (surrounded by B.H.C. powder.) not available

L_2 (ii). Seed contained in birdwire cage with a flywire base to allow insect entry but to exclude mammals.

L_3 (iii). Seed laid on a flywire tray, otherwise unprotected.

B To test loss in viability due to exposure.

E_1 (i). Seed placed under canopy.

E_2 (ii). Seed placed in the open.

C To test loss in viability due to other causes.

V_1 (i). Seed placed on bare ground of current years burning.

V_2 (ii). Seed placed on 3 year old (approx.) litter.

Method. All wire containers and trays will be partly hidden by small quantities of litter to minimize interference, particularly by cockatoos.

Assessment. Seed will be left in its prescribed position until the last week in April when it will be removed to the Laboratory. Each batch of 100 seeds will be tested by either cutting or by carefully controlled germination test using vermiculite as the germinating medium. If the cutting test is used it will be related to true germinative capacity by comparing a cutting test of a sample of the same seed (having been stored in the laboratory) and a germination test of 6 lots x 100 seed.

Labelling. Each seed lot will be labelled:- using the serial number and letter designating variable and level, and the number of the replication last.

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24/8/'65.

- PT. 45 A -   DWELLINGUP.

SUBSEQUENT HISTORY.

Containers of seed were laid in the field at the following locations on 4th January 1966.

a). On area burnt ...... weeks previously –

b) On three year old litter –

The B.H.C. powder prescribed for treatment L_1 was not used.

Seed used in the trial was collected from mature trees in Leesdale Block in August 1965, extracted by sun drying and was determined as 93% sound (on a 380 seed sample) by a cutting test. In a germination test of 6× 50 seeds sown on 24/8/65, the percentage germination was as follows:–

Period from sowing	Replications (germination percent).						Mean.
	1.	2.	3.	4.	5.	6.	
1 month.	54%.	52%.	58%.	58%.	54%	66%.	57%.
2 months (germination complete)	82%.	82%	78%.	90%	86%	92%.	85%.

Seeds sown at 640 per oz (from 4× 7gm samples).

19th April 1966. Containers were removed from the field to the laboratory and the remaining seed assessed giving the following figures (out of 100 original seeds):–

Treatments.			Replicate (Nos of seeds remaining). 1		2		3		Mean.	
			Sound	Total	Sound	Total	Sound	Total	Sound	Total
L_1 (Seed in flywire envelopes)	E_1	V_1	59	100.	38	98	52	92	49.7	96.7
		V_2	69	100.	60	93	56	99.	61.7	97.3
	E_2	V_1	84	94	86	100	77	99	82.3	97.7
		V_2	81	95	85	100.	52	95	73.7	96.7.
L_2 (Seed in birdwire cage)	E_1	V_1	2	3	0	0	0	8	0.7	3.7
		V_2	1	6	0	2	0	2.	0.3	3.3
	E_2	V_1	0	1	1	1	3	6	1.3	2.7
		V_2	0	4	0	7	0	14.	0	8.3
L_3 (no cage)	E_1	V_1	62	71	63	70	7	36	44.0	59.0.
		V_2	0	54	0	17	0	23	0	31.3
	E_2	V_1	43	58	0	0*	0	0	21.5	29.0.3
		V_2	4	9	16	22	5	6	8.3.	12.3

Sound = sound by cutting test.

* – Container tipped up by animal or falling branch.

EXPT #5A. SUBSEQUENT HISTORY

Effect of factors :-

	No of seeds remaining :- Sound.	Fatal.	Percentage of remaining seed which is sound
A - Seed containers :-			
Flywire envelope (λ_1)	66.9	97.1	68.9%
Birdwire cage (λ_2)	0.6	4.5	
Open tray (λ_3)	18.5	32.9	56.2%
B - Exposure :-			
Under canopy (E_1)	26.1	48.6	53.7%
In open (E_2)	29.2	41.1	71.0%
C - Effect of litter & burning :-			
Bare ground, recently burnt (V_1)	33.3	48.1	69.0%
3 year old litter (V_2)	24.0	41.5	57.8%

20th April. Germination test of 6 × ~~50~~ 100 lots of the original seed was started.

A cutting test revealed the seed to be still 93% sound by this method (2 × 100 lots - 91% & 95%).

Germination test started in April indicated ~~that~~ 82.3% germination.