orientation, facilitative possession, perception on completeness, perception on understandability and perception on information management.

As there was positive and significant inter-correlation between knowledge about use and maintenance practices of plant protection appliances and extenstion contact, it may be stated that more knowledge about use and maintenance practices of plant protection appliances of owner farmers might be due to the extension contact. Such high extension contact would have consumed more time as reported by Anandarao (1988) who stated that more time wasted on extension contact was the undesirable indirect consequences for the desirable direct consequences of more extension contact. Hence those having less extension contact would find more time to procure facilities required for better adoption of maintenance practices. So naturally those who had higher extent of adoption of maintenance practices would be low in their knowledge about use and maintenance practices of plant protection appliances. This is how the negative influence of knowledge about use and maintenance practices of plant protection with extent of adoption may be explained.

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Foliar application of nutrient on the seed yield and quality characters of nonaged and aged seeds of cotton CV. MCU 5

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Abstract : Seed cotton yield and seed yield were improved by DAP 2% foliar spray twice at 75 and 90 days after sowing. The per cent germination and root length of resultant seeds was also increased by DAP 2% spray. But boron 0.5% increased the shoot length of resultant seeds. The response of the resultant seed in stroage through accelerated ageing was also found to be similar. Where, the germination improvement was upto 15.5% in DAP spray seeds than control seeds. (*Key Words : MCU 5, Nutrient spray, Ageing, Seed cotton yield, Seed yield and Quality characters).*

Studies on the field performance of old seeds on their yield and quality characters of resultant seeds and their management practice is important asany seed has to be stored atleast for a period of nine months under ambient conditions under the certification programme. The individual seeds in a lot might be undergoing differential ageing depending upon its previous production histroy, structural soundness and viability at the time of harvest.

All the places where the seeds are produced may not have suitable storage environment. Hence, the seeds inevitably stored in these places will be deteriorating at a faster rate. When these stored seeds are sown in the field in the next season the differentially aged individual seeds though given a

blanket treatment uniformly but also may not perform equally in the soil due to many inclement factors in the soil. In this condition the progenies of aged seeds might have differential phenotypic architecture within the broad genetic make up leading to nonsynchronization of flowering, fruiting, seeed setting an harvesting. Hence, a study was made to find out the influence of foliar nutrients on seed cotton yield, seed yield and performance of resultant seeds of differentially aged seeds.

Materials and Methods

An experiment was laidout to study the influence of foliar natrients on seeds of aged and nonaged seeds of cotton cv. MCU 5. Fresh seeds of MCU 5 were subjected to accelerated ageing (Wood-stock and Feeley, 1965) for five days (A_1) and nonaged seeds (A_0) served as control.

The recommended dose of NPK (80:40:40 kg ha^{-1}) were applied to all treatments uniformly. The crop was raised under irrigated condition. Foliar spraying with nutrients were given two times at 75 and 90 days after sowing for both A_0 and A_1 seeds. The treatmental details were as follows: To control (No spraying), T_1 $MgSO_4$ 2%, T_2 DAP 2% and T_3 Borax 0.5%. The trial was conducted under RBD with six replications.

At harvest, the kapas were picked in 2 pickings (15 days intervals) from each plot and were weighed and reported as seed cotton yield (kg ha_{-1}). Then they were ginned in a laboratroy model gin and the seeds obtained were cleaned, weighed and expressed as seed yield (kg ha^{-1}). From the resultant seeds Germination test was conducted as per ISTA (1999) and observations were made on the seedling quality characters viz., root length, shoot length and dry matter production (10 seedlings^{-1}). The vigour index values were also computed as per Abdul-Baki and Anderson (1973). The data gathered were scrutinized as per Panse and Sukhatme (1995) to trace the level of significance.

Results and Discussion

There was a reduction in seed cotton and seed yield to an extent of 14 to 19 and 19 to 25 per cent at first and second picking respectively in aged seeds. The nonaged seeds recorded 1580 and 1004 kg ha^{-1} seed cotton and seed yield respectively, while the aged seeds recorded 1399 and 865 kg ha^{-1} from both first and second picking (Table 1)

Foliar spray with DAP 2% could able to improve the seed cotton yield to an extent of 50 and 46 per cent at first and second picking respectively.

Table 1. Influence of foliar application of nutrients on seed cotton yield (kg ha^{-1}) and seed yield (kg ha^{-1}) of aged and nonaged seeds of cotton cv. MCU. 5

Treat-ment	Seed cotton yield kg ha^{-1}						Seed yield kg ha^{-1}					
	First picking (P_1)			Second picking (P_2)			First picking (P_1)			Second picking (P_2)		
	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean
T_0	1004	933	968	576	466	521	641	577	609	363	288	325
T_1	1358	1189	1273	728	625	676	756	630	693	435	354	394
T_2	1655	1402	1528	839	737	786	860	707	783	522	441	481
T_3	1316	1141	1218	714	611	662	789	652	720	428	319	373
Mean	1333	1166	1249	714	609	661	761	641	701	437	350	393

	A	T	P	AxT	TxP	AxP	AxTxP
CD (p=0.05) Seed cotton yield	150.0**	212.0**	150.0**	NS	NS	NS	NS
Seed yield	3.8**	5.4**	3.8**	7.7**	7.7**	5.4**	NS

A_0-Nonaged A_1-5 days aged

The spray also enhanced the seed yield to the tune of 21 and 53 per cent in aged non aged seeds respectively. The increased seed cotton yield due to DAP spraying was also reported by Mehetre et al. (1990) and Pothiraj et al. (1995). The foliar application of DAP also increased the seed yield in cotton (Vanangamudi et al., 1987). Rajendran (1991) in greengram, Sharma et al., (1991) in gram, Sabir-Ahamed (1989) in soybean and Gurusamy (1996) in cauliflower also reported the beneficial influence of DAP spray in increasing the seed yield. DAP is a complex fertilizer which supply more than one fertilizer element needed for crop growth. It contains 21% N and 54% P_2O_5. The dilute solution of DAP sprayed on the crops and leaves readily absorb the nutrients (Kolay, 1993).

The ageing of source seed also known to affect the resultant seed performance (Nargis, 1995), In the present investigation resultant seeds of aged seeds (A_1) recorded 4 and 5 per cent reduction in germination, 15 and 19 per cent reduction in root length, 6 and 6 per cent reduction in shoot length 17 and 19 per cent reduction in vigour index and 9 and 10 per cent reduction in drymatter production at first and second picking respectively (Table 2, 3&4). The results indicated that the ageing of source seed was clearly reflected in seedling characters of resultant seeds were evident in the present study compared to germination. Foliar spray with DAP also increased the germination and root length compared to control, as informed by Sabir-Ahamed (1989) in soybean. Boron increased the shoot length of resultant seeds than control, $MgSO_4$ and DAP spray. Lakshmi (1995) in cotton and Sabir-Ahamed (1989) in soybean also recorded foliar application of boron increased the shoot length of resultant seeds. The beneficial influence of nutrient spray by DAP was followed by boron and $MgSO_4$ @ 0.5% and 2% respectively during 75 and 90 days after sowing. Thus the study revealed that foliar spray with DAP 2% improved not only the seed yield and seed cotton yield but also the seed and seedling quality characters of fresh as well as aged (stored) seed. But increment was higher in fresh than aged seeds.

Table 2. Influence of foliar application of nutrients on germination (%) of resultant seeds of aged and nonaged seeds of cotton cv. MCU.5

Treatment	First picking (P_1)			Second picking (P_2)		
	A_0	A_1	Mean	A_0	A_1	Mean
T_0	73 (58.6)	67 (54.9)	70 (56.7)	70 (56.7)	64 (53.1)	67 (54.9)
T_1	74 (59.3)	69 (56.1)	71 (57.4)	71 (57.4)	67 (54.9)	69 (56.1)
T_2	83 (65.6)	78 (62.0)	80 (63.4)	81 (64.1)	74 (59.3)	77 (61.3)
T_3	77 (61.3)	73 (58.6)	75 (60.0)	74 (59.3)	70 (56.7)	72 (58.0)
Mean	76 (60.6)	72 (58.0)	74 (59.3)	74 (59.3)	69 (56.1)	71 (57.4)

	A	T	P	AxT	TxP	AxP	AxTxP
CD (P=0.05)	0.6**	0.8**	0.6**	NS	NS	NS	Ns

A_0 - Non aged

A_1 - 5 days aged

Table 3. Influence of foliar application of nutrients on root length (cm) and shoot length (cm) of seedling from resultant seed of aged and non aged seeds of cotton cv. MCU. 5

Treat-ment	Root length (cm)						Shoot length (cm)					
	First picking (P_1)			Second picking (P_2)			First picking (P_1)			Second picking (P_2)		
	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean
T_0	10.8	9.8	10.3	10.2	9.5	9.8	15.6	14.6	15.1	15.3	14.2	14.7
T_1	12.3	10.3	11.3	12.0	10.1	11.0	16.2	15.4	15.8	15.8	15.2	15.5
T_2	13.2	11.5	12.5	12.8	10.3	11.5	16.6	15.6	16.1	16.2	15.3	15.7
T_3	12.4	16.7	11.6	12.2	10.2	11.2	17.5	16.3	16.9	17.1	15.9	16.5
Mean	12.2	10.5	11.3	11.8	10.0	10.9	16.5	15.4	15.9	16.1	15.2	15.6

		A	T	P	AxT	AxP	AxP	AxTxP
CD	Root length	0.04**	0.06**	0.04**	0.09**	0.09**	0.6**	0.13**
(p=0.05)	Shoot length	0.03**	0.04**	0.03**	0.06**	NS	NS	NS

A_0-Non aged A_1-5 days aged

Table 4. Influence of foliar application of nutrients on vigour index and drymatter production (mg) of seedling from resultant seeds of aged and nonaged seeds of cotton cv. MCU 5.

Treat-ment	Vigour index						Dry matter production (mg)					
	First picking (P_1)			Second picking (P_2)			First picking (P_1)			Second picking (P_2)		
	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean	A_0	A_1	Mean
T_0	829	756	792	809	731	770	1933	1651	1792	1803	1548	1675
T_1	928	856	892	911	826	868	2116	1781	1948	2080	1700	1890
T_2	987	892	939	962	871	916	2476	2132	2304	2358	1918	1238
T_3	934	868	901	907	850	878	2309	1973	2141	1291	1830	2010
Mean	919	843	881	897	819	858	209	1884	2046	2108	1749	1928

		A	T	P	AxT	AxP	AxP	AxTxP
CD	Vigour index	3.5**	4.9**	3.5**	7.0**	NS	NS	NS
(p=0.05)	Drymatter production	13.8**	19.5**	13.8**	27.6**	27.6**	NS	39.0**

A_0-Nonaged A_1-5 days aged

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Life table studies of the diamondback moth *Plutella xylostella (L.)* on cauliflower, cabbage and mustard

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Abstract : Life table studies on cauliflower, cabbage and mustard showed that DBM had a gross reproductive rate of 89.16, 115.40 and 86.78 female eggs per female on the above three crops. The species had a capacity for natural increase of 0.16, 0.17 and 0.13 females per day on cauliflower, cabbage and mustard with a (daily finite rate of increase) of 1.18, 1.19 and 1.14 females per day, the population would multiply 3.18, 3.38 and 2.50 times every week. *(Key Words : Intrinsic rate of increase, Finite rate of increase, Gross reproductive rate, Plutella xylostella)*

The Diamondback moth (DBM), *Plutella xylostella* (L.) (Lepidoptera : Plutellidae) is an important pest of cruciferous crops and enjoys worldwide distribution (Chelliah and Srinivasan, 1986). Among several crucifers, the pest exhibits a marked preference for cauliflower and cabbage which provide olfactory and gustatory stimuli for successful host selection and development (Singh