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A NOTE ON EXPERIMENTAL STUDY OF NATURAL RADIATION ON THE VEGETABLE SEEDS IN ANTARCTICA

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Antarctic environment, in addition to extreme cold, is also full of ultraviolet rays during the day time. These two factors, coupled with others, make Antarctic environment a harsh stressful condition, which makes lives very difficult in the region. However, the prevailing environmental stress leaves many facts to be assessed in academic interest in plant sciences. During the 15^{th} Indian expedition to Antarctica, an experiment was therefore, formulated with different varieties of vegetables seeds. In this experiment, tomato, capsicum, chilli, bean, squash lettuce and cabbage produced under normal environment were exposed for 7 to 20 days to natural conditions of Antarctica (**Fig.1**). The minimum and maximum average temperatures were -1.8° C to $+3.0^{\circ}$ C and



Fig. 1: Treatment of natural radiation on materials of different vegetables

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average sun intensity varied from 159.10 to $171.69 \text{ cal/cm}^2/\text{day}$ during the period.of exposure (Table-1).

$\begin{array}{c cccc} Crop/variety \\ \hline From \\ \hline From \\ \hline To \\ \hline To \\ \hline Call \\ call$	Table 1: Meteorological observations at Maith						
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $		From	То	days	Max	Min	
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	HT-8	04.01.96	21.01.96	16	+3	-1.7	168.70
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		23.01.96	31.01.96	09	+2.5	-1.2	166.20
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		02.02.96	20.02.96		+3.5	-1.2	174.20
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		02.02.96	20.02.96	19	+3.5	-1.9	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Best of all	03.01.96	21.01.96	17	+3	-1.7	168.70
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Cabbage $01.02.96$ $21.01.96$ 20 $+3.5$ -1.9 174.20							
Cabbage 01.02.96 21.01.96 20 +3.5 -1.9 174.20	Lettuce	05.01.96	23.01.96	19	+2.1	-1.8	159.10
	Cabbage	01.02.96	21.01.96				
Cross type	Cross type						

Table 1: Meteorological observations at Maitri

The objectives of the experiment were:

- 1. To assess the effect of ultraviolet irradiation on genetic properties of different vegetables.
- 2. To assess the effect of cold treatment on various physiological processes.
- 3. To develop the lines for different desirable traits specially cold tolerance, disease resistance and field-adaptability.