EFFECT OF SEED PRIMING ON GROWTH, YIELD COMPONENTS AND YIELD OF LENTIL (*Lens culinaris)*

A THESIS

BY

MOST. NAZMUN NAHER
Student no. 1805193
Session: 2018-2019
Semester: July-December, 2019

MASTER OF SCIENCE
IN
AGRONOMY

DEPARTMENT OF AGRONOMY

HAJEE MOHAMMAD DANESH SCIENCE ANDTECHNOLOGY UNIVERSITY, DINAJPUR

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DECEMBER, 2019

Dedicated to

My

Beloved Parents

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The author

ABSTRACT

The experiment was conducted to assess the "Effect of seed priming on growth, yield components, and yield of lentil (*Lens culinaris)* at the Agronomy Research Field of Hajee Mohammad Danesh Science and Technology University, Dinajpur during the period from November, 2018 to March, 2019. The experiment comprised four levels seed priming and two varieties of lentil. The experiment was laid out in Randomized Complete Block Design (Factorial) with three replications. Each block was divided into 8 plots where 8 treatment combinations were allotted at random. The treatments were designed with two factors i. verities; V_1= BARI Masur-7, V_2= BARI Masur-8 and ii. Seed priming; P_1= Normal seed (Control), P_2= Hydro priming (DW), P_3= Halo priming (KNO_3:1% solution of potassium nitrate), P_4= Hormonal priming (4% solution of mannitol). Both seed priming and varieties had significant effect on plant height (cm), branches plant^{1} number of pods plant^{-1}, number of seeds pod^{-1}, pod length (cm), weight of 1000-seeds, seed yield (t ha^{-1}), biological yield (t ha^{-1}) and harvest index (%) except stover yield (t ha^{-1}). Results revealed that verities had significant effect on yield attributes and yield of lentil. BARI Masur-8 gave maximum pods plant^{-1} (54.23), 1000-seeds weight (21.93 g), seed yield (1.86t ha^{-1}) as well as harvest index (44.68 %). In case of seed priming, significant variations were observed in yield attributes and yield of lentil P_3 (1% KNO_3) gave higher pods plant^{-1} (57.61), 1000-seeds weight (22.15 g), seed yield (2.08 t ha^{-1}) and harvest index (46.89 %). P_3 had 27.60 % higher yield than P_1 (1.63 t ha^{-1}) which was minimum yield. Interaction effects of verities and seed priming were significantly influenced all most parameters of yield attributes and yield of lentil. The interaction effect of V_2P_3 (BARI Masur-8 and priming with 1% KNO_3) where maximum pods plant^{-1} (61.11), seeds pod^{-1} (1.82),1000-seeds weight (22.74 g), harvest index (47.66 %) as well as seed yield (2.14 t ha^{-1}) were recorded. V_2P_3 had 32.09% increased seed yield over V_1P_1 which gave significantly minimum seed yield (1.62t ha^{-1}).

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ABBREVIATIONS AND ACRONYMS

%	= Percent
AEZ	= Agro-Ecological Zone
Agric.	= Agriculture
Agril.	= Agricultural
ANOVA	= Analysis of Variance
BARI	= Bangladesh Agricultural Research Institute
BBS	= Bangladesh Bureau of Statistics
BINA	= Bangladesh Institute of Nuclear Agriculture
Ca	= Calcium
CCC	= Chlorocholine Chloride
CHO	= Carbohydrate
cm	= Centi-meter
CV	= Co-efficient of Variation
DAS	= Days after sowing
DMRT	= Duncan's Multiple Range Test
DW	= Distilled Water
et al.	= and others (*at elli*)
FAO	= Food and Agriculture Organization
g	= gram (s)
GA_3	= Gibberellic acid
ha	= Hectare
HI	= Harvest Index
HSTU	= Hajee Mohammad Danesh Science and Technology University
IAA	= Indole -3-acetic acid
IBA	= Indole-3 butyric acid
K	= Potassium
kg	= Kilogram
Kg/ha	= Kilogram/hectare
KNO_3	= Potassium Nitrate
m	= Meter
MOG	= Microbial Organism
N	= Nitrogen

no	= Number
PEG	= Polyethylene Glycol
PGR	= Plant Growth Regulator
pH	= Hydrogen ion concentration
ppm	= Parts per million
RCBD	= Randomized Complete Block Design
UNDP	= United Nations Development Program
Viz	= Namely
Zn	= Zinc