

Review Form 1.6

Journal Name:	International Journal of Plant & Soil Science
Manuscript Number:	Ms_IJPSS_91394
Title of the Manuscript:	Soil Physico-Chemical Properties as Influenced by Combined Use of NPK and Zinc at Varying Levels under Blackgram (Vigna mungo L.) Cultivation in an Inceptisol of Prayagraj, Uttar Pradesh, India
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<https://www.journalijpss.com/index.php/IJPSS/editorial-policy>)

Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>-Pulses are being recognized as an excellent source of plant protein but they are also an important source of vitamins, minerals, fiber and essential amino acids. Among the pulses, blackgram [<i>Vigna mungo</i> L.] popularly known as "urdbean" is one of the most highly prized protein-rich pulse crops grown in almost all parts of India during both the summer and rainy season</p> <p>-Indian farmers are constantly confronted with the tremendous challenge of increasing pulse production due to low inherent nutrient status, indiscriminate use of chemical fertilizers and rapid depletion of soil fertility.</p> <p>-The optimum dose of fertilizer recommendation is essential for increasing the nutrient capital of the soil, which will enhance the pulse production in our country</p> <p>-The current investigation was undertaken during late <i>khari</i> season of 2021, to study the effect of different levels of NPK and Zinc on physico-chemical properties of soil, growth and yield of blackgram under different establishment methods</p>	
Minor REVISION comments	<p>-Chemical fertilizers, also known as mineral fertilizers, are play a significant role in meeting the nutrient requirements of the crop but excessive use of chemical fertilizers affects the soil health adversely on physical, chemical and biological properties of soil.</p> <p>-Nitrogen (N) additionally called "protein builder", one in every of the foremost necessary and essential nutrient elements, plays a crucial role in the synthesis of chlorophyll, amino acids and others organic compounds that contributes to the building blocks of proteins and thus the growth of plants. Insufficient nitrogen may drastically reduce yields and deteriorate the quality of produce (Kumar <i>et al.</i>, 2012)</p> <p>-Phosphorous (P) is essential for photosynthesis, sugar metabolism, energy storage and transfer, cell division, cell enlargement, genetic information transfer, root growth, nodulation and nitrogen fixation in plants (Tamang and Sanjay-Swami, 2017)</p> <p>-Potassium (K) is required for increasing crop yield and quality due to its effect on photosynthesis, water use efficiency, plant tolerance to diseases, drought and cold as well as for maintaining protein-carbohydrate balance (Singh <i>et al.</i>, 2008). When there is a lack of potassium in plants, many metabolic processes are affected like the rate of photosynthesis, translocation and enzymes system (Mengal, 1997)</p> <p>-Zinc (Zn) in the soil helps plants uptake NPK properly and in an adequate amount to maintain plant growth. It is a vital element needed for the biosynthesis of hormones, viz., Indole Acetic Acid (IAA) and is necessary to activate to many enzymes like Tryptophan synthetase and dehydrogenases. Zinc deficiency impairs the formation of RNA and proteins (Maish <i>et al.</i>, 2018). According to reports, zinc deficiency is the most common. Zinc deficiency has been reported in particularly from Punjab, the tarai area of U.P, some parts of Haryana, Western U.P and Delhi (Thakkar <i>et al.</i>, 2005)</p>	
Optional/General comments	<p>-The experiment was laid out in randomized block design (RBD) with 9 treatments randomly allocated into three replications.</p> <p>-The treatment consisted of three levels of NPK (0:0:0, 10:20:10 and 20:40:20 kg ha⁻¹) and three levels of zinc (0, 2.5 and 5 kg ha⁻¹).</p> <p>-Statistical interpretation of experimental results indicated that application of blended NPK @ 20:40:20 kg ha⁻¹ in conjunction with Zn @ 5 kg ha⁻¹ [T9] performed better on maintaining soil properties by way of registering optimum values of bulk density (BD), particle density (PD), pore space (PS), water holding capacity (WHC) with neutral in soil reaction (pH) and nonsaline in nature (EC).</p> <p>-In case of soil nutrient status, the highest availability of organic carbon (OC), nitrogen (N), potassium (K) and zinc (Zn) at post-harvest soil of blackgram were also recorded in T9 [N20P40K20 + Zn @ 5 kg ha⁻¹] as compared to other treatments, while maximum phosphorus (P) availability was noted under T7 [N20P40K20 + Zn @ 0 kg ha⁻¹] due to antagonistic relationship between phosphorus (P) and zinc (Zn)</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

Name:	Tran Van Minh
Department, University & Country	International University, Vietnam