



SDI Review Form 1.6

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2013_BJAST_8458
Title of the Manuscript:	EFFECTS OF CULTIVAR AND BULB SIZE AT PLANTING ON GROWTH AND BULB YIELD OF ONION (<i>Allium cepa</i> L) IN THE NORTHERN REGION OF GHANA
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:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



SDI 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	My main concern is that this field study was done for only one season. Any field study needs to be repeated for at least another season. For a scientific paper more than one seasons data is needed because climate differ between seasons and may play a major role in results obtained. So I will therefor suggest that the data should be presented as a short communication and when two season's data are available it can be presented in a full scientific paper. The final decision on this is however in the hands of the editor of this Journal. I however worked through the paper 1. TITLE: The title can be shortened. Delete "at planting". It is (<i>Allium cepa</i> L.) 2. ABSTRACT: Some comments and recommendations is made in the script itself. Comment marked as 1: In the field experiment three onion cultivars and three bulb sizes were used. The experiment was laid out as a randomized complete block design and each treatment combination was replicated four times. Comment marked as 2: This needs to be re-phrase. Comment marked as 3: Results indicated that the highest	Abstract In the Abstract, it has been explained in the revised version that the study was conducted in year 2012, and was repeated in 2013. The study was conducted in year 2012 and repeated in 2013; means of data collected for each parameter were computed prior to entering the data into the spreadsheet for analysis. Title The title of the paper has been modifie in accordance with the suggestion raised by the reviewer. Changes recommended by the reviewer have all been incorporated into the abstract. Introduction The cultivars Bawku red, White onion and Nigel White are some of the common cultivars grown by farmers in the study area, hence it was important to investigate the cultivars In fact, in Ghana, most growers prefer to plant onion from the bulb instead of using the seeds for



SDI Review Form 1.6

	yield in the northern region of Ghana was obtained with the large (45-60 mm in diameter) bulbs of 'Bawku red'. 3. Key words: are normally only words that do not appear in the title. See suggestions on the script 4. INTRODUCTION The introduction needs urgent attention. It needs to be reconsidered and re-written. The authors did not convince me of the importance of this study. The first paragraph can be much shorter and instead of presenting general information on onions rather give the reader more information on the importance of onion production in Ghana (statistics) and also refer to problems experiencing with onion production in Ghana that necessitated this study. Why was it so important to investigate the cultivars (white red and brown) and because onion is a bulb it is general knowledge that larger bulbs will perform better so why was this study then necessary in Ghana?? Motivate the study instead of giving general information on onions. Then referring also to onion morphology that leads to sprouting that will help you with the discussion of the results. Paragraph two of the introduction, the first three sentences, is not very clear. I will recommend that the authors considering using scientific terms when referring to the different plant parts of onions (JL Brewster, 2008, Onions and other vegetable alliums. 2nd edition). References 5, 6 and 7 you referring to: did they work under the same conditions or in other parts of the world. Did they used irrigation or was this done under dry land conditions. When they refer to small medium and large did they all used the same sizes for these three grades of	planting. This is because, as explained in the text, development is faster when bulbs are used and plants get stronger as compared with planting from seeds. It was explained that in plant production, different cultivars of a particular crop species may have different growth, agronomic or yield characteristics but the actual size to be used for planting for good yield remains unknown to most farmers in Ghana and this what necessitated this study. All these have been incorporated in the introduction. In vegetatively reproduced plants, in general the bigger the planting material the higher the yield, but this is not always true. In fact my reviewer can read Mollah <i>et al.</i> (1997). Other authors have observed that in some geophytes or bulbous plants even medium sized bulbs gave better results than large bulbs. Similarly, yield in crops/geophytic plants is controlled by a number of factors such as the number and types of leaf primordial in the planting material. In addition, the biggest planting material does not necessarily have the highest reserved food/carbohydrate stored in them as compared to other planting sizes. In fact in plant physiology, rate/extent of carbohydrate partitioning, metabolism and assimilation may not necessarily also follow bulb sizes or sizes of planting materials and /but is a determinant of yield. In fact, the performance of planting materials, as it were, may not only be determined by the size but also genetic factors and cultivar differences may also play a role in this case in most crop species, hence the importance of this
--	---	---



SDI Review Form 1.6

	onions as you?? You refer to - planting with bulbs are probably the simplest method- Than what other methods and why? Give a reference for this statement. It may be true under your conditions but not everywhere in the world. Be careful to making general statements without scientific evidence (reference). 5. MATERIALS AND METHODS This section needs to be elaborated on in much more detail. There are many areas that are not clear. Especially the data collection. How many plants per replica were data collected? When and how was it done? For example leaf length was measured every second week for 8 weeks from planting to 6 weeks after planting. No information is given on the gross experiment size, plot size, plant population, spacing. Plants per plot, plants ha⁻¹. Planting depth, planting method (hand or mechanically). Cultivation practices such as irrigation, fertilisation, weed and pest control is not presented at all. Data collection needs to be explained in much more detail and needs to correspond with the data presented. Which plants and how many per replication were measured and counted, when was it measured and counted and for how long. When was the bulbs harvested (days after planting)? How was it harvested and handled before measuring the fresh mass. Was the bulbs graded and if according to what? Was only the marketable bulbs harvested or were all bulbs harvested, counted??	topic and the relevance of the study. All other suggestions by the reviewer in the introduction have been incorporated. Planting using the bulbs is preferred to planting from seeds. This is a common practice in Ghana and is known by Ghanaians, and I do not think we need any formal reference for this statement before it can be justifiable; maybe, people elsewhere may later quote our paper as the reference source for this statement in the future. The reviewer wanted to know the meaning of medium sized bulb as reported by refs 5, and again, the reviewer questioned the meaning of 'similar results as reported by refs 6 and 7'. I do not know if my reviewer would like to read the full papers of refs 5, 6 and 7 but in the paper different bulb sizes were used just like this study and it was not the small or large bulb size that gave the best results in terms of yield but rather the medium sized bulbs. Again, according to refs 6 and 7 the same/similar observation was observed i.e. trend in yield. It is also stated in the text (introduction) that in Ghana, most growers prefer to plant onion from the bulb instead of using the seeds and the reason is stated in the text. <u>Materials and Methods</u> Comments on information on distance between rows and between plants in the row, plot dimension etc, and size of the experimental unit,
--	--	--



SDI Review Form 1.6

	What are tillers? As far as I know there is not such term used for onions. 6. RESULTS Leaf length and number For the two growth parameters it is not clear if the interaction between cultivar and bulb size was significant or not. If not which of the two main effects was significant. First state what was significant and what not. I guest and reading the abstract the interaction was not significant. Then I guest cultivars did not differ significantly from each other and that it was only bulb size that influenced both leaf length and number. If this is correct then the graphs can be used as it is. BUT to just state that it shows the influence of bulb size on leaf length or number is not good enough. Because nowhere in the there is an indication of the LSD values so that the reader can distinguish between a significant difference or not. In the graphs presented there should be at least 3 LSD values one for each week after plating. That is if each weeks data were analysed separately, but if all the data of the different weeks were analysed together another factor "time" is added to the data then results may show a significant interaction between bulb size and weeks after planting then only one LSD per graph is needed. The main problem with the presentation of the results that the authors only say what bulb size resulted in the longest leaves and what size in the shortest leaves. The question is, is this difference significant or not. It is also not possible for the reader to determine this from the graph because of the absence of the LSD values in the graphs.	depth of planting as raised by the reviewer have all been incorporated. The section on cultural practices addresses pests/weeds/disease control as requested by the reviewer. I have also addressed the query on how many plants per replicate were used for data and data collection methods used. Also information on harvesting time, irrigation practices, , handling of bulbs and grading after harvest and meaning of tillers have been supplied/incorporated into the text. RESULTS In fact, the reviewer is right, for the growth parameters, cultivars did not differ significantly from each other but only bulb size influenced the two parameters and this has been inserted in the text. Data was analysed separately each week. I appreciate all comments raised by reviewer on the need to insert LSDs but having said that cutivar did not influence the growth parameters but bulb size did, and having shown the error bars on the various graphs for each week, I think the data is meaninful even without the LSDs. The use of the error bars on the graphs will let one know or detect if there are differences among values of the various bulb sizes at least for a particular week 's data and that is what is most important.
--	---	---



SDI Review Form 1.6

	I will recommend that the two growth parameters need to be rewritten. It is important to give the reader an idea of which treatment/s (Cultivar xBulb Size or C or BS) significantly influenced the parameter and which treatment not. Add the LSD values to the graphs and present the data in such a way that it is clear which bulb size recorded <u>significantly</u> longer or shorter leaves and not just stating what was the longest and what was the shortest. It is not always to say that when one treatment leaves are the longest that it is <u>significantly</u> longer than the other treatments. That is why data is analysed statistically. Take note of comments on the graphs itself in the text. NUMBER OF TILLERS AND HARVESTED BULBS As was mentioned earlier I am not familiar with the term tiller. Is this sprouts, bulb sets?? The number of harvested bulbs is also not clear. Is this referring to number of bulbs harvested per mother bulb planted or is this the number of bulbs harvested in a specific area (ha^{-1} or m^{-2})? When an interaction is significant you only discuss the interaction and ignore the main effects although they may also be significant. The presentation of the tiller data needs to be rewritten. Bulb number only the bulb size averages needs to be discussed and nothing else because it is the only data that was significant!! Cultivars did not differ significantly from each other. Both medium and large mother bulbs produced significantly more bulbs than the small mother	I think the data is meaningful even without the LSDs. The use of the error bars on the graphs will let one know or detect if there are differences among values of the various bulb sizes at least for a particular week 's data and that is what is most important. At harvest, total number of bulbs per hill (cluster bulb mass) was obtained by counting and manually weighing with an electronic balance. Bulbs were graded into sizes according to their fresh mass. Tillers as used in onion actually refers to sprouts. Though the term 'tillers' is commonly used in grasses, this is not the first time it is used in bulbs. Many authors have use the term to refer to sprouts and is becoming accepted in Ghana here, though I will prefer to use sprouts instead.
--	--	---



SDI Review Form 1.6

	bulbs. Large mother bulbs also produced significantly more bulbs than the large mother bulbs. BULB FRESH MASS Is this now per bulb or all bulbs produced per mother bulb? Are all these bulbs marketable? What is the yield t ha⁻¹? How much is the increase in yield 10% or 60% and how do this compare with the current average yield obtained in Ghana? Is this increase significant? The graph shades used is not clear, it is difficult to distinguished between the cultivar's bars. It is again not clear whether the interaction was significant or not. The graph presented is for the interaction between CxBS. It is however lacking a LSD value for a significant interaction. Now the authors refer to cluster weight what is this?? DISCUSSION You refer to yield but nowhere did you calculate yield! What do you mean by suitable bulb size? This is not scientific. The discussion is not done in a scientific way and need to be re-write. You cannot phrases such as "in my" and "also from my". Who is my there are more than one author for this paper. There is a specific way to refer to unpublished work as stipulated to the authors by the Journal. In the discussion the authors refer to sprouting but no results on sprouting is given earlier in the paper. Or is this now tillers?? Please make use of Brewster when discussing the results to enable you to use plant terms for onions such as rings and tillers. It is also not only reserves in bulb that play a	On bulb number, the interaction was significant and it has been discussed in the text. Bulb size was also significant but cultivar differences were not. The inclusion of main effect of cultivar in the table was not to spend all the time in discussion the cultivar differences (because they were not significant) but to aid in the whole discussion. It can be realised that more time was spent discussing the interaction. Values of bulb fresh mass were expressed as mass of all bulbs produced per mother bulb (i.e. the cluster weight of all bulbs per mother bulb) and this has been stated clearly now in the revised version as recommended by the reviewer. The issue of the LSDs was earlier raised and has been explained (see above). I do not understand what the reviewer mean by calculating yield. The economic yield in onion, as we all know, is the bulb. In the study, bulb yield was measured as fresh mass of bulbs from individual mother bulb (we normally refer to this as cluster bulb mass) and it is the fresh mass of all bulbs per hill.
--	---	---



SDI Review Form 1.6

	role in sprouting but other factors also such as nitrogen and apical dormancy. There are many inconsistencies in the paper that needs to be addressed. Discussion needs major revision. REFERENCES References are not according to the guidelines to authors and need major revision. References used is very old. Of the 19 references used only 4 is younger than 2000, meaning that 84% of references used is older than 13 years.	The use of the phrase such as “ in my” and the issue of unpublished data as mentioned by the reviewer have been addressed by re-phrasing that paragraph to make that aspect of the discussion more scientific according to the reviewer. More time has been spent on the Discussion to put it into good shape. Thank you.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		