

Journal Name: American Journal of Experimental Agriculture

Manuscript Number: MS: 2013_AJEA_3176

Title of the Manuscript: NEEM (*Azadirachta indica*) SEED CAKE/KERNEL AS PROTEIN SOURCE IN RUMINANTS FEED

This manuscript deals with an interesting and important topic thinking about diversification of diets, especially for countries with less forage availability. However, it needs to be reviewed in order to better discuss the information, as well as to show updated results in animal performance and debitterizing process that support your ultimate goal. Furthermore, the text has many primary drafting errors, typos and repetitions that are not conclusive. In my view, before this manuscript can be considered, a major rewrite is needed to reduce repetitions and have a focus on the beneficial impact of neem diet. It is recommended to have the manuscript proof read by a native English speaker with competency in scientific writing.

Abstract:

Lines 25 and 26: **antinutritional factors and limitation, methods of processing and debitterizing the cake, nutritional quality, palatability, nutrient digestibility and performance:** It seems to be that there are repetitions in some of these topics;

Lines 28-29: **neem seed cake/kernel could readily serve as safe source of protein to the ruminants with appropriate treatment to remove active principles:** there are a lot of articles about the antiparasitic effect of neem. Do you believe that it's interesting to remove the bioactives or just debitterizing the cake? Please check for example: http://cdn.intechopen.com/pdfs/25684/InTech-Neem_tree_azadirachta_indica_a_juss_as_source_of_bioinsectides.pdf

Introduction:

In different moments of the text the authors use: *According to (2)*, the average Nigerian consumes only 3.245g of animal protein per day, out of the 34g recommended

37 by FAO. It would be better exclude this and just add the reference (x) in the end of the paragraph: The average...by FAO (2). The same in the reference 3, 6 and others also in the discussion: (29) reported, (30) observed, etc.

Lines 39 to 42: problems with punctuation. Please review the fragment. Indeed I believe that lines 35 to 42 can be summarized since references 3 (1985) and 4 (1999) are too old to discuss production and consumption in Nigeria at present.

Line 45: fluctuates instead of fuctuates

The content of lines 44 - 46 is similar of lines 47 -52 and would be organized in one paragraph.

There are repetition of information in different points that should be more direct and summarized: for example: Lines 50 and 51: "... The nutritional problems of ruminants have been increased by competition between man and the animals for the scarce grains..." and line 57: "... competition for grains and other crops that are consumed by man"

Line 66: still instead of stll

Suggestion: The introduction could be summarized and the usual protein supplement (GNC and CSC) could be discussed since the main point of this review is to show the neem cake capacity as protein supplement in relation to the others. Also, no information about *A. indica* was cited in the introduction.

Methodology: It seems that for review papers the Journal don't have strict headings of the sections. So, in my opinion this topic could be excluded since this information is obvious.

Discussion

Line 78: The neem tree does well in well drained?

Line 80: the scientific name of the subject of this review just appears here in the discussion topic (*Azadirachta indica*). It is not presented in the introduction. So, I believe that it must be added it in the introduction, at least in the lines 64-65, after neem kernel cake.

Line 87: what is the relation between poor in nutrients and the information 130mm? Maybe it should be after dry soils?!?

Usually we have a space between numbers and units: 15 m, 130 mm, 34 g, etc. Please review these details according to the journal rules.

It seems to me that the title of the topic 3.1 it's not adequate because there is more information available.

line 99: What is NSC? Add: neem seed cake (NSC)

Line 103: the same for CP or for DCP on line 124.

Line 104: What do you mean with adverse effect on production traits?

Lines 106 and 107 have repeated information of the line 105. The information should be organized.

Lines 109 has repeated information of the line 102. The information should be organized.

Lines 108, 114: authors comments about the biological active: against what? There are a lot of recent articles about the antiparasitic effect of *A. indica* (ticks, gastrointestinal nematodes). No comments about it were done. I believe that *A. indica* is more promising as a nutrient than as antiparasitic which justifies the bioactive removal, but I didn't see this information/discussion in the review.

Line 117: exclude this repetition: Neem seed is bitter and pungent in odour. The next phase has similar information.

Line 128 exclude this repetition: The processing of the neem seed into palatable seed cake poses a challenge to its use as animal feed. The previous sentence has similar information.

Lines 132-134: exclude. This information was given before.

Lines 134-137: the information is confusing and needs to be rewritten

Line 144: add a space between spreading and the

Lines 144-145: review the phrase. It doesn't make sense: prepared by spreading the ripe fruits were dried by spreading them

Line 159: hte bitter?

Line 175: (43) fed 27% neem seed cake as a replacement to...???

Line 191: WWNKC instead of water washed neem kernel cake

When we really want to show that a treatment is better than another, it's important to quantify the difference between them:

Line 186: significantly lower growth. How much?

Lines 188-189: observed significantly lower DM digestibility, but higher N-balance and faster growth. How much?

Line 193: improved the growth performance. How much?

Line 194: showed improvement in growth. How much?

Line 197: NSC instead of Neem (*Azadirachta indica*) seed cake (NSC), because this information was given before.

Line 198: It instead of Neem seed cake

Line 200: ATNKC and NKC. What it means?

Line 201: NSC balanced instead of Neem seed cake balanced

Line 201: NSC has a mineral balance? Rewrite.

Table 1: Pb is in a wrong line and the results are not in the same line of the products

Line 214: here you show the meaning: The crude protein (CP). It's necessary to do that in the first time that it appears in the text (line 103), and here you should use just CP.

Line 214: NSC instead of in neem seed cake (NSC)

In the line 206 you inform that neem seed meal is NSM and in line 216 you repeat neem seed meal. The same was highlighted for NSC in different parts of the text. You have to decide if you will use the full name or the abbreviation and make it homogeneous in the text. Other examples: Line 217: neem seed cake, Line 218: neem seed meal, and others.

Exclude lines 223 to 227, since they bring the same information of lines 165 to 168.

Line 235. Is this the item 3.6?

Exclude lines 236 to 242 because this information was given. The paragraph should be started with: The palatability of the NSC can be improved...

Lines 283-286: Rewrite since you have as shown, showed and as shown again.

Table 3 and 4: What the meaning of treatments A to E?

References: Most of them are concentrated in the 80' 90's decades: we have about 1 reference in 60's, 13 in 70's, 20 in 80's, 18 in 90's, 9 between 2001-2005, 4 between 2006-2010 and 3 between 2011 and 2012. So I believe that it's important to check recent publications to make the review more updated.

Reviewer Details:

Name:	Ana Carolina de Souza Chagas
Department, University & Country	Southeast Livestock Unit, Brazilian Agricultural Research, Brazil