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- (i) Chris Dharmakirti's message of 08-12-21**
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Chris Dharmakirti's message, 8-12-21 to a list of 161 addresses, some of them group addresses.

chris dharmakirti <chrisdharmakirti@gmail.com>

To: B. F. A. Basnayake, Gamini Seneviratne

Cc: Nimal Chandrasena, Chandra Dissanayake, Buddhi Marambe, Madduma Bandara, Udith Jayasinghe etc

Wed., Dec. 8 at 2:56 p.m.

Dear Professor Seneviratne, Prof Basnayake, Prof Roshan, Prof Kulasooriya, Dr Senanayake, and Dr Premakumara

It is commendable that all six of you, as active research scientists in your respective fields, have been relentlessly pursuing, impartially, and with an open mind, to find optimized soil nutrient management solutions as well as total biome efficiency through a balanced ecosystem management that would benefit our local farmers and the sustainability of the ecosystem itself. Furthermore, with the onset of climate change, it is quite obvious that both our highland and lowland farmers of food crops as well as our planters of export crops, are facing a new set of challenges to retain soil moisture levels and the retention of the applied plant growth nutrients itself, due to poor land use practices.

Must say that some of the critics of your efforts are not actively engaged in any research pertaining to your fields, and thus I find their responses to your research to be bereft of any logic and scientific rigor.

It is indeed sad that our research organizations staffed with bright scientists who develop scientifically derived solutions for the agriculture and plantation sector, are not receiving the support they need to scale up the research and to gain mass adoption through commercialization of the inventions. The few efforts that had yielded positive commercial support have also got stifled because of the unwillingness by different agri sector regulators to adopt those innovations.

The recent exchange of views between different professionals on the subject of agriculture, exposed the knowledge gaps that exists on a variety of subjects, and what is really sad is the unwillingness of some to listen or entertain another point of view, and to resist the counterpoint of view as if this is a zero sum game. It is essential for our nation to rise above narrow agendas and to scientifically consider the evidence of research outcomes, and to be big enough to applaud the efforts. Our "kuhaka" attitudes and "not invented here" attitude, and the "jack of all trades and master of none" domination of the discourse has hurt the discussion, and not fostered a constructive dialogue.

I am herewith appending some of the research that I have read recently pertaining to your areas of expertise and find that many of them are reaffirming your field research results and validating what each of you have done. I found that some of the articles published in the local newspapers and the email threads that are widely circulated are carrying one sided arguments, and have deliberately left out important research findings, and even local field trial results, which have been hidden from the public, so as to prevent any one of us from being able to make an informed analysis and appraisal of what is possible and what is not.

I hope you find these research studies useful for your discussions with respect to your relevant fields.

Thank you

With metta blessings

Chris

I have put on the web some of the files that Chris Dharmakirti attached.

See: <https://dh-web.org/green/BBF/Paranthan2020ChrisD.pdf>

<https://dh-web.org/green/BBF/global-survey-organicVSconventional-yields.pdf>

The main content of the soil-fertility document by Ananada K was already contained in

<https://dh-web.org/green/BBF/Kula-Agri-cheml-org-cdw.pdf>

<https://dh-web.org/green/BBF/biochaar-rice-yields.pdf>

<https://dh-web.org/green/BBF/excessive-fertilizer-potato-farming.pdf>

Dr. Nimal Chandrasena's reply to Dr. Chris Dharmakirti.

In a contribution a few weeks ago, communicated only to essentially the "agricultural scientists" I supported Dr. Dharmawardena's point about the BFBF research being in "infancy".

I gave my reasons and attached two critically important two new books on "bio-fertilizers" and two recent articles, one from NATURE; one from Frontiers of Science.

Both Books are recent (2020); both articles are recent (2020).

Undoubtedly, "Bio-Fertilizers" are an emerging science. Much of the science ("Cause-and-Effect") are being studied. Progress has been quite slow, as discussed in those articles.

That's the way the world sees it.

My contributions are in Dr. Dharmawardena's Website:

<https://dh-web.org/green/BBF/index.html>

If interested - please have a look.
If anyone wants more information - please ask.

Dr. CD has said - let us move on. The discussion has occasionally gone in directions unworthy of scientists in general.
The implicit and explicit attacks on "expatriate" scientists is unfortunate.

Coming back to what I am on about today - I am really astounded by this Chris Dharmakeerthi's e-mail today.
I had a look on the material Chris has provided assuming it would help the discourse on "Bio-Film Bio-Fertilizers" (BFBF).
But I must say that nearly ALL of the material, bar one, has not much relevance to what we have been discussing!

For the benefit of those who will never read this stuff - Let me briefly comment on each one:

1. Attachment 9-17-1-SM from a commentary by Hemanthi Ranasinghe - it could be considered useful; it promotes Organic Agric over the over-reliance on Inorganic Fertilizers. But the connection to CKDU is absolutely unproven. There is a wealth of information on this subject and many global articles are now emerging questioning the "unproven" linkages. Questions are also being asked about Sri Lankan scientists naming CKDU as a purely "agricultural" issue. The research community is yet to be convinced. It is a discussion for another time but has no relevance to the discussion on the effectiveness of BFBF.

[CDW-I did not put up this attachment on the web as it is a SJP university publication which is not peer-reviewed and also now rather outdated.]

2. Attachment 120517 is an ICRISAT Report of 2004. Nearly 2 decades ago, yes, there were great hopes, then 20 years ago and even now, led by India and a few other countries. The Nature article and Frontiers articles and the two recent books provide ample evidence.

3. Biochar infused Org Fertilizer - yes, Biochar does indeed work under specific conditions. But Biochar is NOT what we are discussing. The production of Biochar itself is energy intensive. China and India lead the way in biochar work. It does not mean it is a suitable approach for all forms of agriculture. Biochar from woodchips and or other organic residues may make a minor contribution to eco-friendly farming. The world knows that.

4. Attachment 4 - Excessive Use of Chem Fert in Potato Farming - peer reviewed probably in Sri Lanka only. Journal of Trop Agric Research. Not a comprehensive study. May have some relevance but I doubt it.

5. Attachment 5 - Global Survey Org vs Conventional 2012. Proves the point that the Yield reductions in OA are quite substantial and highly variable and specific to locations. Recommends quite intensive studies before general acceptance. This is 9 years ago. The 2020 articles and the two books supercede such articles.

6. Attachment 6 - A Local Sri Lankan Conf in 2017 on "Land Health". An important topic. Discussed by senior agriculturists in SL. However, the ideas are "feel-good" only. But the contents have not much to offer in terms of the current discussion of BFBF. The Conf obviously supports OA and research in this regard. I have no dispute with anyone charting a pathway forward to reduce the over-use and abuse of Inorganic Fertilizers and seeking a balance with organic approaches. The scenario is much the same with herbicides and pesticides, including insecticides.

7. Attachment 7 - Interesting Paddy Fertilizer Audit Report focusing on SL's Fert subsidizer program. Very interesting figures, which prove that SL is under-performing in Rice production. Overall, no relevance to the present discourse.

8. Attachment 8 - Paranthan Fert Research Results - Useless, because we the reader has no idea what the bio-fertilizer is. It could be anything!

9. Attachment 9 - Soil Fertility in Org Agriculture - Kulasooriya short article - assume Dr. Kulasooriya has written this account for local consumption with good intentions. But to draw a connection between the poor rice yields only up to 2005 of 4 ton per ha and "dead soils" is incredulous! More data are needed. It would have been good if someone proved "dead soils" free of microbes that are linked to the poor rice yields. To conclude in that short account that OA will make everything better is an extraordinary claim! I see no evidence to support such a claim in the article. Perhaps, the DOA should focus more on breeding better and more resilient and 'selected' rice varieties. Our Indian brethren, along with the IRRI in the Philippines, followed by the highly productive Australian and USA Rice-breeding research lead the world in this regard. So much to learn from such countries. May I say that the article adds no added value to our discussion on BFBF.

10. Attachment 10 - Perhaps this 2020 article on Biochar is a critically important one. But BCF that appears to have positive effects and increase rice yields has biochar made out of wheat straw and inorganic fertilizers (N, P, K) added to create a "fertilizer". Here is an excerpt:

"...In the production of BCF, 200 g of dry wheat straw was mixed with 15 g urea, 15 g bentonite clay, 15 g rock phosphate, 5 g Fe₂O₃ and 5 g

FeSO₄.7H₂O (Yao et al., 2015). The non-biomass ingredients were dissolved and dispersed in 100 g demineralized water at 80 °C and then the straw was added. The mixture was left to stand for 24 h, then dried for 3 h at 110 °C in a laboratory pyrolysis system as described by Rawal et al. (2016). The temperature was increased at a heating rate of 5 °C/min and held at 400 °C for 30 min. It was then cooled to room temp...".

The article argues that concentrations of "nutrients" in BCF over No BCF were not that high; therefore, the BCF effects are attributable to "OTHER" effects in soil. Probably quite true as a hypothesis. Exactly what we should prove in Sri Lanka.

A final comment - The BFBF research will go nowhere without "bench-top" proof of the "Cause-and-Effect" (i.e. nitrification with Rhizobia and other bacteria; denitrification, Arbuscular Micorrhiza and P uptake, etc etc.). These topics are of great interest globally. The analytical techniques are quite complex and expensive. But IFS may have them?

If SL has analyzed the nutrient "mineralization" processes in treated soil that contribute to increased crop yields under BFBF treatments vs controls - I have not seen them yet. If anyone has them, perhaps it is the time to publish.

Needless to say, doing extensive Field Trials with BFBF should have been preceded by extensive "Proof of Concept" studies in the Laboratories. If we saw some such evidence, published in Internationally-reviewed journals or even SL journals, I think we might have been convinced.

This is all I have to say.

Please do not attack me or others personally - "expatriates" like myself do not deserve to be attacked.

I made some valid observations - if anyone wants more information you may ask.

Otherwise, as Dr. CD says let us close this discourse because it is more than likely as Kipling said about the East and West "Never the Twain Shall Meet"!

Respectfully and with Kind Regards
NIMAL