FW: Experimental Agriculture paper 05.064

From: Peter Cornish (p.cornish@uws.edu.au)

To: wayan_wangiyana@yahoo.com; w_wangiyana@telkom.net

Date: Thursday, September 22, 2005, 07:58 AM GMT+8

From: Mike Carr [mailto:mikecarr.rtcs@freeuk.com]
Sent: Tuesday, September 20, 2005 7:14 PM
To: Peter Cornish
Cc: w_wangiyana@telkom.net
Subject: Experimental Agriculture paper 05.064

Dear Professor Cornish

Thank you for your letter (dated 13.09.05) enclosing typescripts of the following paper:

Arbiscular mycorrhizal fungi (AMF) dynamics in contrasting cropping systems on vertisol and regosol soils of Lombok , Indonesia

It will now be sent to referees who will recommend whether it is suitable for publication in *Experimental Agriculture*. I shall be in touch with you again after I have received their comments.

Your paper has been given the reference **05.064.**

Please use this number in all future correspondence, which should be sent to the address below.

With kind regards

Mike Carr
Editor, Experimental Agriculture

PS I assume that you are not the Peter Cornish I remember from Cranfield University/Silsoe College days?

http://uk.cambridge.org/journals/eag

With a focus on the tropics and sub-tropical regions of the world, Experimental Agriculture publishes the results of original research on field, plantation and herbage crops grown for food or feed, or for industrial purposes, and on farming systems, including livestock and people. It reports experimental work designed to explain how crops respond to the environment in biological and physical terms, and on the social and economic issues that may influence the uptake of the results of research by policy makers and farmers. The journal also publishes accounts and critical discussions of new quantitative and qualitative methods in agricultural research, and of contemporary issues arising in countries where agricultural production needs to develop rapidly. There is a regular book review section and occasional, often invited, reviews of research.

Professor M. K. V. Carr

Crop and Water Management Systems (Intl.) Ltd, Pear Tree Cottage, Frog Lane , Ilmington, Shipston on Stour, Warwickshire , CV36 4LG , UK .

Tel/Fax +44 (0)1608 682184 (office)

Tel/Fax +44 (0)1608 682806 (house)

Mobile +44 (0) 7932 612903

e-mail mikecarr.rtcs@freeUK.com

RE: Proof corrections to Experimental Agriculture paper URGENT please reply

From: Peter Cornish (p.cornish@uws.edu.au)

To: Vicki.Harley@care4free.net

Cc: wayan_wangiyana@yahoo.com

Date: Friday, July 28, 2006, 05:52 AM GMT+8

Dear Vicki

I think you have a pretty fair job with the translation, but I have copied your email and my response to Dr Wangiyana for him to confirm. However, email communication with Mataram is patchy (the reason I am corresponding author), so I cannot guarantee a prompt response from him.

My suggestion is to run with your translation when you need to, unless you have heard from Dr Wangiyana beforehand.

Peter

Peter Cornish
Professor of Agriculture (Farming Systems)
University of Western Sydney (Hawkesbury Campus)
PO Box 1797 PENRITH SOUTH DC
Penrith NSW 1797
Australia
Ph: +61 2 4570 1376
Fax: +61 2 4570 1684

From: Vicki Harley [mailto:Vicki.Harley@care4free.net]
Sent: Fri 28/07/2006 4:28 AM
To: Peter Cornish
Subject: Proof corrections to Experimental Agriculture paper URGENT please reply

Dear Dr Cornish

I am collating the corrections to the proofs of your paper:
ARBUSCULAR MYCORRHIZAL FUNGI DYNAMICS IN CONTRASTING CROPPING SYSTEMS ON VERTISOL AND REGOSOL SOILS OF LOMBOK, INDONESIA

1. Professor Mike Carr has asked me to check the details of one of the references in your paper:
Diperta Tk.I NTB (1999). "Laporan Tahunan 1999". Mataram:Dinas Pertanian Tanaman Pangan Propinsi Nusa Tanggara Barat.
It may be difficult for many readers to work what kind of publication this is so can you provide an English translation of at least part of it??
The meaning seems to be something like
Annual Report 1999. Mataram Agriculture and Food Crops Office, West Nusa Tenggara Province.
So the final version of the reference would be
Diperta Tk.I NTB (1999). "Laporan Tahunan 1999". Mataram:Dinas Pertanian Tanaman Pangan Propinsi Nusa Tanggara Barat. [in Indonesian]. (Annual Report 1999. Mataram Agriculture and Food Crops Office, West Nusa Tenggara Province.)

Please can you confirm or correct my suggested translation.

I hope that you can reply to this right away so that I can complete the corrections to the proofs.

Yours sincerely

Vicki Harley

RE: RE: Experimental Agriculture paper 05.064

From: Charles Morris (c.morris@uws.edu.au)

To: P.Cornish@uws.edu.au

Cc: wayan_wangiyana@yahoo.com

Date: Monday, January 30, 2006, 08:08 AM GMT+8

Peter

Many thanks, changes all look good to me.

Regards

Charles M

From: Peter Cornish
Sent: Friday, January 13, 2006 5:02 PM
To: Wayan Wangiyana; Charles Morris
Subject: RE: RE: Experimental Agriculture paper 05.064

Dear Wayan and Charles

I have responded to the referee's comments and revised the paper accordingly, leaving a small amount of further work for you Wayan. Mostly adding re-transformed means to some tables, as suggested.

I recommend against any further ANOVA, accepting Charles' advice - no orthogonal comparisons.

Could you both read my response and indicate to me that you accept it or not; and Wayan, do the small amount of extra work and then send the manuscript back to me with all changes tracked. Wayan, can you especially check the revised conclusions.

I have ruthlessly cut out references - hope this is OK.

Best wishes

Peter

From: Wayan Wangiyana [mailto:wayan_wangiyana@yahoo.com]
Sent: Wed 4/01/2006 3:52 PM
To: Peter Cornish
Cc: Wayan Wangiyana
Subject: RE: RE: Experimental Agriculture paper 05.064

Thanks Peter,

Yes, I will also try to find some times to work on this paper. I hope that we can finish it soon.

If we divide the four systems based on their source of water, we could say as what the referee #1 suggested that we had rainfed and irrigated systems, with dryland and upland rice systems on the rainfed and once- and twice-rice systems in the irrigated areas. However, in terms of AMF life cycles, cropping sequences may be stronger in making them different each other compared with source of water. Thus, the once- & twice-rice systems, although have the same source of water, they may be different because of different crop types and sequences. The once-rice and upland rice systems do different because they are different both in source of water and types and

intensity of cropping. Thus, they are all equally different rather than orthogonal, although we could think that they are orthogonal if we stick to source of water, or we could also say that they are orthogonal due to type of crops between rice and non-rice.

With regard to comment b) by referee #1, the R2 value of 52%, we obtained it from the mean from each combination of soil type and system, NOT from the 32 site's data of available P and Colonisastion at sampling time 1 (Col_1). When producing scatter plot from the 32 sites, there is no pattern (see sheet Site_Avg in the attached file "Col_P_T1.xls"), but from the mean for each combination between soil type and system (2x4 combinations) we got an exponential relationship with an R2 of 52% (see sheet AvgSoilSys). When I put system names and soil types, as suggested by referee #1 (but not from 32 sites), it is clear from the scatter plot that systems in vertisol soil scatters on the other side from those in regosol soil, and upland rice system in each soil type seem to be an outlier of the other systems in each soil type. By omitting upland rice systems and plot the other systems in each soil type, R2 was significantly improved. What do you think?

What do you think about paper 2? I think we still can and should cut the content further, especially the references.

With regards
WAYAN

--- Peter Cornish <P.Cornish@uws.edu.au> wrote:

> Dear Wayan
>
> I have attached the final version as sent to the
> journal.
>
> I will review your comments along with those of
> Charles and the referees
> and be in touch soon with some recommendations on
> what to do. But we
> will do the minimum necessary.
>
> Regarding your second paragraph, could you please
> explain what you mean
> by "..... but the four systems could be
> different" ?
>
> Peter
>
>
>
> -----Original Message-----
> From: Wayan Wangiyana
> [mailto:wayan_wangiyana@yahoo.com]
> Sent: Tuesday, January 03, 2006 5:16 PM
> To: Peter Cornish
> Cc: Peter Cornish; Wayan Wangiyana
> Subject: Fwd: RE: Experimental Agriculture paper
> 05.064
>
> Dear Peter,
>
> With regard to the referee #1 comments, I agree with
> Charles that it was
> not a repeated measure design, because the
> measurements were not

> repeated on one object; it was not possible to get
> next sample from the
> same position because the rizosphere soil and plant
> root, including the
> plant were taken out from it posisition, so on that
> specific posisition,
> there will be no plant anymore for next sampling.
> The diagonal line was
> also not in a fixed posisition. It was random in
> nature because I
> actually did not come to the same side of the field
> sampled previously.
> I did not even have an exact record on the exact
> position of the
> previous samples from a field. I AGREE
>
> Do you think I should try to make orthogonal
> comparisons between dryland
> and wetland, and comparisons within each of them? We
> could do this, but
> the four systems could be different. I'LL LET YOU
> KNOW
>
> I'll also try to do the other orthogonal comparison,
> but since the
> journal does not allow post-hoc comparison, it will
> be a matter of
> calculating SE. OK
>
> Could you please send me (attachment) the final
> version that you
> submitted to Expl. Agric, please. ATTACHED
>
> I did not have any holiday during Christmas and New
> Year. It was the
> last week lecture, so the subsequent work to be done
> is preparing exam
> questions and finishing marking mid-semester exam
> papers. I am also
> currently writing a paper for a national journal. I
> DIDN'T TAKE OFF MUCH
> TIME EITHER
>
> Have a happy New Year... AND TO YOU AND YOUR FAMILY
>
>
> Regards
> WAYAN
>
>
>
>
>
>
>
> _____
> Yahoo! for Good - Make a difference this year.
> http://brand.yahoo.com/cybergivingweek2005/
>

RE: EA paper 05.064 Wy_Revised

From: Peter Cornish (p.cornish@uws.edu.au)

To: wayan_wangiyana@yahoo.com

Date: Friday, February 10, 2006, 04:20 PM GMT+8

Dear Wayan

This is the final version of the paper. Charles had nothing to add to what I had done/said.

I will send it Monday unless I hear from you to the contrary.

I don't think there are page charges.

Forget my reference to Ag Systems - I was just trying to think of the second journal we had talked about. I have made some progress on paper 2. I think this needs to go to a different journal because of the similarities to paper 1. And it should go soon. I am working towards Ag Ecos and Env, even if there are page charges (I will pay)

Peter

From: Wayan Wangiyana [mailto:wayan_wangiyana@yahoo.com]
Sent: Tue 7/02/2006 12:16 PM
To: Peter Cornish
Cc: Wayan Wangiyana; Wayan Wangiyana
Subject: EA paper 05.064 Wy_Revised

Dear Peter,

First, sorry I misreferred to Expl. Agric., what I meant was Agric. Ecosys. Environment. So, paper 2 was formatted according to this journal.

For paper 1, from the revised version you sent me, I have tried to to further revision to meet the requirements of Expl. Agric.:
1. I removed 5 refs, i.e. Abbott & Robson; Friese & Allen; Kuo; Nelson & SOmmers; Ponanamperuma, and the cited text from these refs.
2. From the Summary, I changed 1999-2000 to 1999/2000, to be consistent, this also the terms we use in Indonesia, meaning rainy season, which between two years, e.g. 1999/2000 (Oct to Mar). Also, we better use "AMF propagules" instead of soil inoculum (this normally associated with inoculation).
3. From Friese & Allen, I only borrowed the term "runner hyphae", so I think we can remove the ref.
4. I also think the two soil analysis methods are common techniques so we can omit the refs.
5. I added some words in the text.
6. I also included the new tables 5 & 6.

I think these are the best we can do. The journal requirement says that only a maximum of fifteen refs can be cited, except for invited reviews. I hope this version is ready to submit unless you and Charles want to do more editing. When you submit the redy-to-publish version, please sent also a copy of the file to me.

You mention Agric. Systems, but I do not have "information for author" for this journal. If can download one, could you please send one to me.

If we do not have to pay for publication of this paper #1, I will consider Expl. Agric. as the main destination to send articles for publication. So, please let me know everything related to publication of this paper 1, such as payment, and when it will be published. I hope this version is accepted.

Regards
WAYAN

--- Peter Cornish <P.Cornish@uws.edu.au> wrote:

> OK. I see now. Whilst you refer to Exp Agr
> below, you don't plan to submit tot it.
>
> Can you tell me why you have sent me two versions of
> the paper 2?
>
> Peter
>
>
>
> _____
>
> From: Peter Cornish
> Sent: Fri 13/01/2006 5:07 PM
> To: Wayan Wangiyana
> Subject: RE: Experimental Agriculture paper 05.064
>
>
> Wayan
>
> I'll get onto this now. By the way, I thought you
> had a different journal in mind...Ag Systems
> perhaps???
>
> Peter
>
>
>
> _____
>
> From: Wayan Wangiyana
> [mailto:wayan_wangiyana@yahoo.com]
> Sent: Mon 26/12/2005 3:40 PM
> To: Peter Cornish
> Subject: RE: Experimental Agriculture paper 05.064
>
>
>
> Dear Peter,
>
> Here are the files; one a printed version and the
> other a submission version. Please you read
> carefully
> and check for further editing. May be it's too long,
> especially the Discussion, also the References (if
> we
> follow the Expl. Agr. requirement).
>
> Have a merry Christmas and a happy New Year.
>
>
> Regards
>
> WAYAN
>
>
> --- Peter Cornish <P.Cornish@uws.edu.au> wrote:
>

> > Dear Wayan
> >
> > I did not get your paper 2. Could you send it to
> me
> > again, please
> >
> > Peter
> >
> >
> >
> > _____
> >
> > From: Wayan Wangiyana
> > [mailto:wayan_wangiyana@yahoo.com]
> > Sent: Sat 24/12/2005 3:35 PM
> > To: Charles Morris
> > Cc: Peter Cornish; Peter Cornish; Wayan Wangiyana;
> > w_wangiyana@yahoo.co.id
> > Subject: RE: Experimental Agriculture paper 05.064
> >
> >
> >
> > Dear Charles & Peter,
> >
> > Thank you very much for your email with responses
> on
> > the referee's commands. I am glad to have this
> good
> > news that they like our paper, but I am sorry for
> > not
> > checking email for long, especially this email
> > address. I normally check my address at Telkom.Net
> > because it's a POP based email; cheaper for us.
> > Also,
> > this yahoo address has been too many junk mails,
> so
> > I
> > am realy reluctant to check it. I have also
> recently
> > made another yahoo address, i.e.
> > w_wangiyana@yahoo.co.id, so please the two address
> > when emailing me. Thanks.
> >
> > To Peter, I sent you paper2 couple of days ago,
> but
> > reading the response from the Expl. Ag. editor,
> that
> > paper2 may be too long, and too many references.
> So,
> > could you please read it carefully and do
> necessary
> > editing, thanks.
> >
> > With regard to the Expl. Ag. paper (paper1)
> because
> > I
> > just found your email (yours and Charles'), let me
> > think before responding to the commants.
> >
> > May I and my family wish you both a Merry
> Christmas
> > and a Happy New Year.
> >
> > I will send what I think as soon as it's ready.
> >
> >
> > With regards
> >
> > Wayan
> >
> >
> > --- Charles Morris <C.Morris@uws.edu.au> wrote:
> >

> > > Dear Peter and Wayun,
> > >
> > > I have commented on aspects of Referee 1's
> > comments
> > > in the attachment.
> > >
> > > See what you think.
> > >
> > > Regards
> > >
> > > Charles M
> > >
> > > _____
> > >
> > > From: Peter Cornish
> > > Sent: Thursday, December 15, 2005 3:04 PM
> > > To: Charles Morris; Wayan Wangiyana
> > > Subject: FW: Experimental Agriculture paper
> 05.064
> > > Importance: High
> > >
> > >
> > > Dear Wayan and Charles
> > >
> > > I have just returned form India, and found the
> > > pleasing email below.
> > > Our paper in Exp Agric will be accepted subject
> to
> > > minor revision.
> > >
> > > One referee has little to say, the other has
> more
> > to
> > > say, but mostly
> > > related to the statistics.
> > >
> > > I am happy to make any changes to the
> manuscript,
> > > but in your case Wayan
> > > I would like your response to each of the points
> > > made by the referees
> > > where you think you would like to respond , or
> > where
> > > you think I may not
> > > know the answer. Just insert your BRIEF
> response
> > in
> > > the text below,
> > > using a different font or colour. But can I
> > > especially have your
> > > response to the comments on the statistics -
> most
> > of
> > > the rest I can deal
> > > with. I do NOT want you doing anything on the
> > > statistics yet, just make
> > > a response saying what might, or might not, be
> > done.
> > >
> > > Charles, could you also look at the stats and
> let
> > us
> > > both know what you
> > > think should or should not be done.
> > >
> > > Then Charles and Wayan can agree on how to
> respond
> > > to the comments on
> > > the statistics, and who should do it. I do not
> > > think this should
>
=== message truncated ===

ExpAg90206.doc
120.5kB

FW: Experimental Agriculture paper 05.064

From: Peter Cornish (p.cornish@uws.edu.au)

To: w_wangiyana@telkom.net; wayan_wangiyana@yahoo.com; w_wangiyana@pop3.telkom.net; C.Morris@uws.edu.au

Date: Tuesday, February 14, 2006, 06:43 AM GMT+8

Dear Wayan

Congratulations!

Peter

PS This paper can now be listed as 'In Press' in your CV

From: Mike [mailto:s.carr78@btinternet.com]
Sent: Monday, February 13, 2006 10:41 PM
To: Peter Cornish
Subject: RE: Experimental Agriculture paper 05.064

Dear Peter

I am pleased to be able to accept your revised paper (05.064R) for publication in Experimental Agriculture.

Thank you for explaining so clearly the action you took/or didn't take in response to the referees comments. This is always very helpful to an editor!

The manuscript will now be passed to our Copy Editor, Vicki Harley , who I expect will be in touch in due course.

We expect the paper to be published in volume 42(4), October 2006.

With best wishes

Mike Carr
Editor, Experimental Agriculture

EXPERIMENTAL AGRICULTURE
http://uk.cambridge.org/journals/eag
Editorial policy
With a focus on the tropics and sub-tropical regions of the world, Experimental Agriculture publishes the results of original research on field, plantation and herbage crops grown for food or feed, or for industrial purposes, and on farming systems, including livestock and people. It reports experimental work designed to explain how crops respond to the environment in biological and physical terms, and on the social and economic issues that may influence the uptake of the results of research by policy makers and farmers. The journal also publishes accounts and critical discussions of new quantitative and qualitative methods in agricultural research, and of contemporary issues arising in countries where agricultural production needs to develop rapidly. There is a regular book review section and occasional, often invited, reviews of research.

From: Peter Cornish [mailto:P.Cornish@uws.edu.au]
Sent: 12 February 2006 23:10
To: Mike
Subject: RE: Experimental Agriculture paper 05.064

Dear Mike

Please find attached our response to the referee's and the revised paper. The most important changes are a revised Summary and 'Conclusion', 17 fewer references (with some reduction in 'Discussion'), and the addition of untransformed data to some tables, as requested. Other changes are minor.

This has taken longer than I expected, but I was keen to have Dr Wangiyana's contribution to the revision, and communication with Lombok is a bit patchy.

Does the journal require hard copy of the resubmitted manuscript?

Thankyou for considering our paper.

Best wishes

Peter

Peter Cornish
Professor of Agriculture (Farming Systems)
School of Environment and Agriculture
University of Western Sydney (Hawkesbury Campus)
PO Box 1797, PENRITH SOUTH DC
Penrith NSW 1797
Australia
Ph: +61 2 4570 1376
Fax: +61 2 4570 1684
Mob: 0414 244 269

From: Mike [mailto: s.carr78@btinternet.com]
Sent: Tuesday, November 22, 2005 10:18 PM
To: Peter Cornish
Subject: Experimental Agriculture paper 05.064

Dear Peter

I have now had reports from both referees on your paper (Ref 05.064). Both like the paper and recommend publication after (minor) revision. Their detailed reports are reproduced below.

Referee 1 has highlighted in particular statistical issues that you may wish to consider.

I hope that you find the comments helpful, and I look forward to receiving a revised manuscript as soon as possible. Please indicate what action you have taken (if any) to address each point.

Please follow the Experimental Agriculture convention for listing references (attached)

With kind regards

Mike Carr
Editor.

REFEREE 1

1. **Is the paper worthy of publication?**

Yes, with some revision. The paper presents the results of a survey which although limited in scope has provided knowledge that is a useful addition to that on AMF in rice based cropping systems. The paper could be shortened in the Discussion section with no over all loss in value and the findings and implications of this research made more explicit.

2. **Does the material in the paper substantiate the conclusions reached?**

Yes - as far as the conclusions go. The conclusions are given in the paper but could be better signposted and visible. These appear to be in the last paragraph and it would be helpful to separate them from the Discussion by a suitable heading and identify the specific conclusions and in relation to the research aims. These would refer to: 1. The better understanding of AMF dynamics in rice-based cropping systems (Summarise what the better understanding reached was?). 2. What further studies are needed to enhance the role of AMF in rice-based cropping systems. (The conclusions in relation to 2 are general and are not well derived from the evidence in this paper).

3. **Do you recommend that the paper be:-**
~~Published as it stands~~
Returned to the author(s) for *minor* revision
~~Rejected for publication?~~
(Please delete as appropriate)

4. **If you recommend rejection, a succinct statement of the grounds for rejection would be helpful**.

Not applicable

5. **If you recommend return to the author(s) for revision, please indicate the matters to which you wish the author(s)'s attention to be drawn. If you are prepared for any of this material to be submitted to the author(s) *verbatim*, please indicate such material**.

I suggest that the authors review and as necessary revise the paper to take account of the following comments - the most important of which involve consulting a bio-metrician/statistician:

a) The sampling frame is set out adequately (although it is not clear that this is a three crop area [I assume it is] and that probably tables 1 and 2 are not needed) but there is a lack of clarity in translating the sampling frame into the analytical model (ANOVA) used.

- The paper states that there are four farming systems, two in rainfed/dryland (no rice and rice) and two in wetland (irrigated with one rice crop or with two rice crops). True, but in practical terms for AMF the difference between the two wetland systems is small since the sampling was done in the pre-rice crop and the first rice crop (I assume this is a three crop area with an MK1 and MK2 crop being possible). The difference between the two wetland systems is therefore due to the residual effect of whether the land was cropped with rice or a non-rice crop in the season (MK1?) before the sampling started (which is assumed to be MK2).
- The description in the *Data Analysis* subsection suggests that the ANOVA used may not be optimal. Sampling time is not an independent factor as suggested since the time of sampling is effectively a 'repeated observation' of the 2 way model (between soils and cropping system). Results at the succeeding sampling times are therefore correlated and this has implications for the form of analysis).
- A further complication for the ANOVA is that the four farming systems are not four levels of one factor but a more complex arrangement. At the first level the difference between rainfed/dryland and wetland. At the second level within rainfed/dryland between no-rice and rice, and within the (irrigated) wetland between one or two rice crops.
- The above points may seem pedantic but they could be important. Firstly because if the analysis presented needs to be adjusted it may lead to a better set of contrasts being examined and (possibly slightly) different but more accurate set of estimated means and associated standard errors. Secondly the within wetland effect should be tested as a contrast in the analysis since its size relative to the effect of other differences (between wetland and rainfed/dryland systems and between no-rice and rice within the rainfed/dryland system) will provide evidence for the some of the questions asked in the Discussion section about the recovery of AMF activity after flooding.
- The interaction between the soil x system (factorial) and the time of sampling is central to the investigation of the 'AMF dynamics' and so the means of examining this interaction should be as effective as possible.
- Insufficient recognition seems to be given in to the fact that sampling times 2 and 3 are within the same crop (early growth and at maturity) and so the difference between sampling times 1 and 2 is substanti all y different to the difference between time 2 and time 3. Presumably sampling time 3 was not later (in the next crop) for some valid reason but the fact that each sampling time is not across a 'cultivation and crop' boundary does have implications for interpretation. This could be seen as a weakness in the survey design (although the authors may feel that it is not) and appears to limit the potential of the results and inference that can be obtained from this work with respect to AMF dynamics. Could this weakness be better acknowledged in the text and turned into a positive feature as a lesson learnt? Or if this comment is not valid the authors can provide a justification for the use of the selected sampling times.

b) Since the exponential equation (page 11) relating P concentration to AMF colonisation explains only 52% of the variation in the association, it may be informative to investigate a scatter plot of the 32 observations labelled by farming system since this may indicate other associations pertinent to the Discussion content. This may not yield better findings and interpretation and so may not need to be incorporated into the revised version.

c) The second aim of the research was to identify the further work needed to enhance the role of AMF in rice-based cropping systems, i.e. what are the implications of this research for future work. This is done in the final paragraph but the Discussion section is dominated by verifying the effects reported against the literature with 30+ references quoted (as opposed to interpreting the results in terms of what might the future work needed to enhance the role of AMF in rice-based cropping systems). This seems to be an imbalance within the paper's content.

d) The paper contains useful research findings but seems too long in relation to that given – largely due to extensive quoting of the literature to substantiate observed effects. This aspect of the paper could be shortened with no loss to the over all value of the paper.

e) Table 4 provides transformed and back-transformed data for available P. It would be helpful for the reader to appreciate the size of the effects if back-transformed data was also provided for table 5, 6 and 7.

f) Figure 1 could probably be more effectively presented as a table (to include back-transformed mean values).

REFEREE 2

General comments

This is a well-conducted experiment presented in a well-written manuscript that is worthy of publication after minor corrections have been made.

Specific comments

P1 Summary L10 Some explanation is needed as to how this conclusion was reached. What measurements support this statement? This is explained in the discussion but needs to appear here as well.

P1 last line Was it "not clear" because there were insufficient samples to determine this or were the results too erratic to determine this?

Summary The focus of this summary is what happened in flooded conditions. Can anything be said about the importance of AM in non-flooded conditions?

P2 L2 This statement about P deficiency is true but I think that it should also be stated that flooding soils increases P availability (as stated in the discussion).

P4 L9 "levels" – what does this mean?

P4 L19 I suggest "field" rather than the Australian "paddock".

P7 L19 I suggest "at each" rather than "per".

P8 L22 "percentage" not "percentages".

P13 L17 The degree of acidification measured was really quite slight so "adaptation to low pH" seems to be overstating the case.

P18 Parman requires initials.

Expl Agric. (2006), volume 42, pp. 427–439 © *2006 Cambridge University Press*
doi:10.1017/S0014479706003826 *Printed in the United Kingdom*

ARBUSCULAR MYCORRHIZAL FUNGI DYNAMICS IN CONTRASTING CROPPING SYSTEMS ON VERTISOL AND REGOSOL SOILS OF LOMBOK, INDONESIA

By W. WANGIYANA†, P. S. CORNISH‡ *and* E. C. MORRIS

University of Western Sydney (Hawkesbury Campus), Locked Bag 1797, Penrith South DC, NSW 1797, Australia

(*Accepted 13 February 2006*)

SUMMARY

Arbuscular mycorrhizal fungi (AMF) may have a major role in phosphorus nutrition of crops in Lombok, where fertilizer use is low. As a start to understanding this role, AMF dynamics were monitored from the 1999 non-rice season to the end of the 1999/2000 rice season at 32 sites including dryland systems with no rice, upland rice and flooded systems with one or two rice crops per year in the rotation. Over all four systems, root colonization was greater in vertisol (22.3 % of roots) than in regosol (9.5 %) soil, possibly due to lower Bray-1 P content of the vertisol (6.2 v. 13.7 mg kg^{-1}). Colonization was poor in flooded rice (3.1–5.1 %); at the same sampling times it was better in upland rice (10.6–13.4 %) and in non-rice crops growing in dryland systems (13.8–17.0 %). Therefore, the low colonization in flooded rice appeared to be the result of flooding, rather than the rice itself. Flooding also reduced transparent spore numbers, but sufficient inoculum appeared to survive flooding for plants in the following non-rice season to be well colonized (19–33 %) regardless of system. These non-flooded crops appear to replenish depleted AMF propagules.

INTRODUCTION

Most soils used to produce rice (*Oryza sativa*) in Asia are deficient in phosphorus (P), and P fertilizer is needed for high yields (De Datta *et al.*, 1990). In Lombok, and elsewhere in Indonesia, fertilizer use on rice has fallen since the Indonesian economic crisis in 1998 that led to increased fertilizer prices. Farmers in Lombok (West Nusa Tenggara province) applied an average of 2.1 kg P ha^{-1} in 1999 compared with 4.7 kg ha^{-1} in 1997 (Diperta Tk.I NTB, 1999). With average rice yields of 4 t ha^{-1}, P inputs as fertilizer are well below the P removed in grain. Although some P fertilizer is used on flooded rice in Lombok, no fertilizer is applied to non-rice crops following rice. Non-rice crops are normally grown as rainfed secondary food crops in the dry season, when irrigation water and/or rainfall are scarce and farmers are reluctant to invest in fertilizer.

In the absence of adequate P fertilizer, effective arbuscular mycorrhizal fungi (AMF) symbiosis has the potential to help crops access more soil P (Arihara and Karasawa, 2001; Solaiman and Hirata, 1995) and achieve higher yields. Integrating AM symbiosis

‡ Corresponding author: p.cornish@uws.edu.au
† Present address: Faculty of Agriculture, University of Mataram, Jln. Majapahit 62, Mataram, Lombok, NTB, Indonesia.