

From: [McWilliams, Katherine](#)
To: [Deardoff, Amy](#)
Subject: FW: Arkansas Phosphorus Index & "Storm Flow/Base Flow"
Date: Wednesday, March 01, 2017 1:19:43 PM

5264-W

-----Original Message-----

From: Wise, Jim
Sent: Wednesday, March 01, 2017 1:19 PM
To: McWilliams, Katherine
Subject: FW: Arkansas Phosphorus Index & "Storm Flow/Base Flow"

Katherine,

We received this question and comment concerning the C&H Hog Farm and the phosphorus index.

Jim

-----Original Message-----

From: drpdrp@windstream.net [<mailto:drpdrp@windstream.net>]
Sent: Tuesday, February 28, 2017 11:44 PM
To: Wise, Jim; Barnett, Mary
Subject: Arkansas Phosphorus Index & "Storm Flow/Base Flow"

Hello,

You have been responsive to my mathematical/statistical notion that no matter what the issue, the statistics should be done correctly. Two things at ADEQ have perked my interest, the first bugs me.

1. A couple of years ago I was reading through "C&H Hog Farms, Inc.- Frequently Asked Questions" AFIN 51-00164 and came across the statement on page 4, 2nd paragraph, "For instance, a field having an STP concentration of 1,000 ppm will contribute 1.8 points to the Phosphorus Index rating." The 1,000 ppm is an absurdly high level of STP, and although the API is extremely lenient, the supposed result of 1.8 change should set off alarm bells for anyone who has read the API. I talked to John Bailey, then at ADEQ, on the phone, by e-mail, and in person, and it was clear that he did not understand the API, perhaps had never seen it, and entirely trusted in farm consultants for ADEQs decisions about the API.

So what is the problem? Firstly they used incorrect units, ppm vs lbs/acre (factor of 2 error) and 2ndly had the wrong formula, namely the one published by the U of A Division of Agriculture, FSA9531. It is missing a normalizing factor of $100/1.8 = 55.6$. For neatness the normalizing factor has 1000 lbs/acre correspond to 100 on its scale. So instead of illustrating the irrelevance of STP, the correct answer should have been 200, twice the allowable value.

After a while, John reluctantly agreed with me, and made a call to have it corrected. On a quirk, I checked tonight and the same passage is there.

Of course I would like this to be corrected, but the larger picture is that the API needs to be re-examined to see if it really is the correct tool. Many of the original creators of these indices (basically one in every state) have come to realize that the allowable levels of P leads to excessive build-ups of P far above any real agronomic need. They call them opaque and obtuse.

ii) Nomenclature: At the last assessment meeting, we all basically punted on the last issue, in which there was a "storm flow" period and a "base flow" period. What is the problem? The USGS has a specific definition of "storm flow" and "base flow" which is derived from mathematically looking at stream specific hydrographs. The base flow is essentially the flow between actual storms, or high water events, not a specific calendar length as presented in the meeting. In other words dry months have

storm flows and wet months have base flow.

So maybe the concept as presented in the meeting has some merit (I am not so sure of that, but I wasn't so well prepared). But please change the names to some better suited words.

David Peterson, Ozark Society