

By Wayne Smith.  
Agronomy consultant  
Western Australia  
[wsmith@agronomy.com.au](mailto:wsmith@agronomy.com.au)  
[www.agronomy.com.au](http://www.agronomy.com.au)

There are two parts to my presentation.

- 1) Yield potentials – How far can we go?
- 2) Learning plant language – How to know what your plant is telling you it needs without testing.

For most farmers, rainfall is *not* the biggest limiting factor to your yields and profitability. Sounds like nonsense at first, until you have a think about it. Yes, rainfall makes a huge difference to your current yields, but what if there are other bigger things limiting your yield that you don't know about yet?

If I said the potential wheat yield for you on 20" of rain, including what was in the soil, was 154 b/ac (about 10t/ha), you may think "no way. If it was possible, why hasn't someone done it by now? Even on the best paddock I only get 80 b/ac on 20" of moisture, so there is no way 154 b/ac is possible."

But what if there was something, or several things holding your yields back that you do not know about? What if everyone around you is still doing the same wrong things and cannot read what your plants are telling you they need?

As you will see in the presentation, I come from a very sandy (beach sand) region of Western Australia. Back in 1987, no one in our high rainfall areas (18" and above is high rainfall for us) along the south coast of Western Australia had ever achieved 30b/ac (2t/ha) wheat yields. No one. Not ever. Yes in barley, oats and canola, but not wheat.

So when I put out a press release in 1988 saying 60 b/ac was easily achievable, I got howled down. If it was possible, why hasn't anyone done it before? Even in a perfect year it would not be possible!!! The potential was 60-120+ b/ac depending on rainfall, but the average achieved yields were 15-18 b/ac.

Those "potential" yields were just not possible, the farmers would say, on these crappy gutless white sands. Just not possible.

Two years later, one of those farmers who ridiculed me in the newspapers averaged 5.5t/ha (~82 b/ac). The same farmer who said 60 was impossible two years later averaged over 80.

A quick rule of thumb to remember on potential yields. When you find out how much moisture is available to your wheat crop each year, ie what has not evaporated away, currently the potential is ~7.55 b/ac per inch of moisture.

When GM or synthetic wheats are released with their superior water use efficiency, the potential yields will change to about 10b/ac for every inch of moisture. Bring it on!!! ☺

When I saw some Kansas wheat crops in April 2006, *every* paddock was showing significant trace element deficiencies, and some with sulphur deficiency as well. Your crops have no chance of getting anywhere near the potential yields while they are sick.

Please don't think that every wheat crop everywhere in the USA is deficient in trace elements and sulphur, because they aren't. But, if you do not keep an eye on the "potential" yields, you will not try hard enough to find out what is stopping you achieving these "impossible" yields. You will think that what you are currently doing is as good as it gets, which it isn't. There is a lot, lot more profit waiting for you than you think.

For the farmers in Western Australia, drought is common and expected. More rainfall gives us more yield until we get too much rain (waterlogging). But, it was not nutrition that was stopping farmers from achieving the potential yields. That was only part of the problem.

Because we started looking at what was theoretically possible, even though initially we thought it was totally impossible, we started researching what was stopping us. The answers were found easily and was why I was so confident 60b/ac was "easily" achievable. In fact, you had to stuff things up a lot *not* to achieve 60b/ac if you received average rainfall.

Which brings me to the second part of my presentation, which is why you need to learn plant language. You or your consultant *must* know what your plant is telling you without tissue tests and soil tests.

Don't get me wrong, I am not saying there is no need for these tissue or soil tests, but there is another skill you need that you will not get from looking at the numbers from those tests.

For example, what if your plant is showing nitrogen and sulphur deficiency but your tissue test shows high nitrate nitrogen? Do you shrug your shoulders saying "the test shows it is high in nitrogen, so must be too cold, too hot, too dry, too wet..."?

Your plants do show you what they need and you can learn it. It does take experience and skill to know what the plant needs first when there are five nutrient problems, but we always start from today and I hope I can impart to you some of my experience. Because our soils are deficient in ALL nutrients, we have had to learn plant language to be able to farm as profitably as we do.

In the presentation I will show you many examples of what your plant is telling you it needs. For some of you, the marks on the leaves are "normal" and you have ignored what it means to the plant.

"Normal" for a wheat and barley crop when the heads are starting to emerge is for it to be green to the tip of every leaf, all the way to the bottom of the plant. Only if they are droughted should there be any dead leaf material. That is what normal should look like and I will show you some photos of this.

I wish you all the best and for a happy, profitable future in farming.

**NOTE:** After the conference, for those interested in learning more on plant language, I am running a workshop (clinic). Please see the conference organisers for details of when and where this will be held.