University of Idaho
Cooperative Extension System

The Cereal Sentinel

A newsletter for Treasure Valley cereal producers

May 5, 1999 Issue No. 19

Topics: **Page**

Important Dates:

July 21, 1999 Malheur Station Field Day

The goal of this newsletter is to serve the best interests of Treasure Valley cereal producers. It will be issued periodically as information warrants. Correspondence and inquiries should be addressed to: **Parma Research and Extension Center, 29603 U of I Lane, Parma, ID 83660 (208-722-6701 Ext. 216) (Fax-208-722-6708) (Email** bradb@uidaho.edu). **The *Cereal Sentinel* is made possible in part by a grant from the Idaho Wheat Commission.**

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Hard Red Wheat Management

Interest in irrigated hard red spring wheat production is higher now than it's been in years. Soft white prices currently aren't very appealing, even if they have come up a bit. Prices for hard red spring wheat (14% protein) in early April were running about $.85 per bushel more than for soft whites after starting the marketing year in July with price differences as great as $1.52 a bushel. The price difference historically has averaged 68 cents a bushel over the 1982-1997 marketing period and ranged from $.16 to $1.98 a bushel for individual marketing years. The average difference in just the last four complete market years (ending June 30 1998) has been 81 cents a bushel.

Hard red spring wheat isn't entirely new to many in southwest Idaho. Several growers have had experience in the distant past with this market class, some of it not all that pleasant, especially the year that protein was adjusted to a 12% moisture basis. The protein discounts that year caused some producers to swear they would never produce it again. And they haven't.

Fall Planted Springs

The price difference in soft white and hard red spring wheat was even greater last fall. In fact, some hard red spring wheat was actually planted by growers late last fall.

With no snow cover and alternating single digit and warmer temperatures, it turned out to be more than some of the emerged spring wheat could stand. Some of this wheat was replanted. On the other hand, some winter wheat didn't fare too well either and was replanted. And winter barley looks the poorest of all. But most reports from growers indicate that the fall planted hard red spring wheat over wintered surprisingly well and looks good. There is some older leaf damage but the fall planted hard red springs in our trials look good also.

Our experience at the Parma Research and Extension Center is that we've never lost soft white or hard red spring wheat fall planted. Fall vs spring planted spring wheat comparisons have been conducted in several years during the last decade. Some of the yield results from Parma are shown in Table 1. The yield advantage of late fall planting vs spring planting is greater in some years than others. Fall planted spring

Table 1. Spring wheat performance with fall vs spring planting dates.

Season and date of planting		Yield	Late fall Advantage
		bu/A	bu/A
	1990		
Winter	12-11-89	102	1
Early spring	3-6-90	101	
	1991		
Late fall	11-13-90	130	14-48
Early spring	2-27-91	116	
Spring	4-3-91	82	
	1992		
Fall	10-31-91	121	
Late fall	11-19-91	119	19
Early spring	3-2-92	100	
	1993		
Fall	10-23-92	135	40
Late spring	4-19-93	95	
	1994		
Late fall	11-16-93	154	6-78
Early spring	3-1-94	148	
Late spring	4-18-94	76	
	1995		
Early fall	10-12-94	135	24-59
Early spring	2-27-95	111	
Late spring	4-12-95	76	
	1996		
Early fall	10-13-95	169	
Late fall	11-16-95	164	27-95
Spring	3-15-96	137	
Late spring	4-15-96	69	
	1997		
Early fall	10-17-96	124	
Late fall	11-13-96	116	2-55
Early spring	2-25-97	114	
Late spring	4-16-97	61	

wheat has a greater advantage over spring planted spring wheat the later that spring wheat is planted in the spring.

Fall planted spring wheats are not without risks, as evidenced by the limited replanting done this year. The biggest trouble we've had is that early fall planted spring wheat has been so top heavy that it has invariably lodged. It appears to be a major constraint to early fall plantings. Later fall plantings were less affected. Secondly, the fall planted springs invariably head earlier than the winter wheats and in one year were damaged by frost in late May.

Protein Discounts and Premiums

Price discounts for delivering hard red spring wheat with less than 14% protein can be appreciable, ranging from a low of 3 to as high as 92 cents per bushel (for each % protein below 14%) when averaged over the marketing year, and can be even greater. Since 1981 the discount has averaged 25 cents per bushel for each protein % less than 14. The discount in mid April was about 20 cents per bushel according to Portland prices. For wheat forward contracted at 14%, the discounts may be higher.

In contrast, the premium for marketing hard red spring with over 14% protein is generally less to considerably less than the discount. The premium per bushel for each protein % over 14 has averaged 15.7 cents per bushel since 1981, 17 cents for the last four years, and in mid April was only 8 cents a bushel . There's little way of knowing what the premium or discount will be at harvest or afterwards.

Historically, it has been far more critical to avoid the discounts than to gain the premium, especially since it costs additional money to enhance protein with late season applied N. The same appears to be the case cuurently. Even then the additional N for protein enhancement is only necessary if the discounts for low protein are appreciable.

Unfortunately, there is little way of predicting what the discounts or premiums will be at harvest. It depends mostly on the current season's yield and protein content of the hard red spring and winter wheat crops in the Plains .

The 40 lb N rate would cost about $12 per acre for the fertilizer alone. Any benefits in terms of avoided discounts or gained premiums would have to exceed the $12 fertilizer cost to provide positive returns. If we assume 80 bu per acre yields, we need to avoid 15 cents per bushel in discounts (or a 0.75% protein increase that does not result in over 14% protein) to break even with the costs of 40 lb per acre of fertilizer N.

If other than sprinkler applied N is delivered, then the return would have to cover the additional application cost as well. If an aerial application costs $8 per acre, again assuming 80 bu wheat, we need to avoid 10 cents a bushel worth of discounts by increasing protein 0.5%.

With the current premium of only 8 cents per bushel, it simply doesn't pay to raise protein above 14%. For example, raising protein of 80 bushel wheat from 14% to 15% with 40 lb of N at the current premium represents only $6.40.

Protein Enhancement

It iws unquestionably more difficult to get 14% protein with the more productive irrigated hard red spring wheat as compared to the less productive wheat grown under drought stressed dryland conditions. With irrigation and nonstressed conditions, the grain fills for a longer time and the additional photosynthate translocated to the grain dilutes the protein content.

Protein is variety dependant. Typically, lower yielding varieties have higher protein, but there are relatively productive varieties that also have excellent protein, such as **Vandal**. But growers should not sacrifice production for the sake of getting higher protein.

If necessary, grain protein content can be increased with additional fertilizer N applied prior to flowering. Sprinkler injected N is the most convenient. However, our research at Parma indicates that a moderate amount of N as a concentrated foliar spray or topdressed N watered in with a sprinkler system is equally effective at increasing grain protein (Table 2).

Additional N through the sprinkler lines saves the application cost while avoiding foliar burn. Very little of the N applied with sprinklers remains on the plant as most is washed off and into the soil.

With furrow irrigation, providing additional N is more of a challenge. Perhaps the best option is to use a concentrated foliar spray, which entails an additional application, normally by air at about the heading stage. With a concentrated foliar application, there is a limit to how much N can be applied without causing foliar burn.

Foliar burn should be avoided. Whereas foliar burn from earlier season applied foliar N in research trials has had minimal affects on yield, foliar burn of the last two leaves to emerge can significantly reduce yield. As much as 50 % or more of the mature grain is derived

from the photosynthesis occurring in the uppermost one

Table 2. Effectiveness of soil and foliar N for increasing protein. Parma, 1994 and 1995.

Application		Leaf Burn %	Protein %
1994			
		20 lb N/A at Heading	
Urea	Foliar	9	12.8
	Soil	0	12.7
		40 lb N/A at Heading	
Urea	Foliar	14	13.5
	Soil	0	13.4
	$LSD_{.05}$	3	0.9
1995			
		20 lb N/A at Heading	
Urea	Foliar	3	14.6
	Soil	0	14.9
		40 lb N/A at Heading	
Urea	Foliar	12	14.6
	Soil	0	14.7
	$LSD_{.05}$	3	1.1

of two leaves. It is one reason why leaf diseases on the upper leaves can be so detrimental.

We have compared two different foliar N sources, uran (Solution 32) and solubilized urea applied 0, 15, 30, or 45 lb N per acre at heading. The major differences in the two foliar N sources are that uran has a higher salt index and contains more N in the nitrate form. In terms of the protein increase, there was no difference in the two in the three years of testing (Figure 1). The foliar burn and associated yield reduction was not consistent each year. But yield was reduced as much as 18 bushels per acre when the applied N caused significant foliar burn.

Uran caused more burn than the solubilized urea at higher N rates and in some cases the burn resulted in reduced yield. In one year, urea applied at the 45 lb rate caused no more burn than uran applied at the 15 lb rate. The maximum rate of foliar uran N that could be applied without affecting yield ranged from 15 to 45 lb/A, depending on the year. Foliar burn was less severe and the adverse affect on yield was reduced the lower wheat protein was at harvest without additional N applied.

Apparently the wheat plant can assimilate more N from

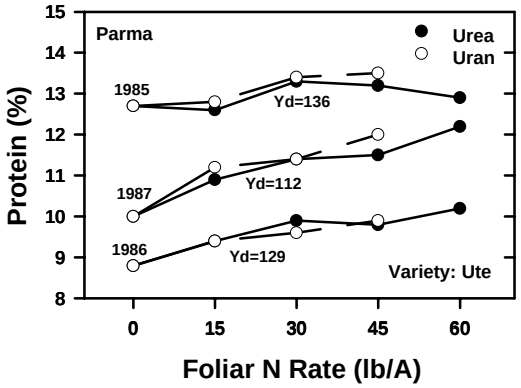


Figure 1. Protein percent as affected by foliar N rate and source. Parma, 1995-97.

the foliar application the lower N is in the plant.

Estimating Wheat Protein

The amount of N to apply for protein enhancement depends in part on how low the plant is in N, the yield, and the protein at harvest without additional N applied. The yield at harvest can't be predicted effectively at

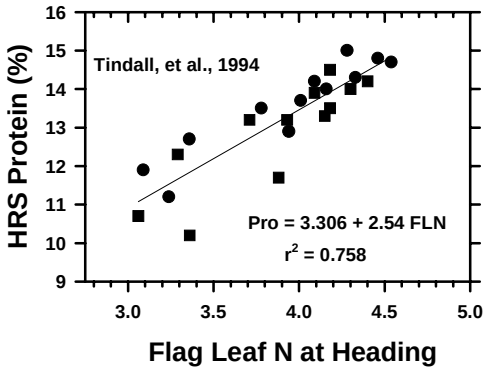


Figure 2. Hard red spring protein percent as related to flag leaf N at heading. Aberdeen.

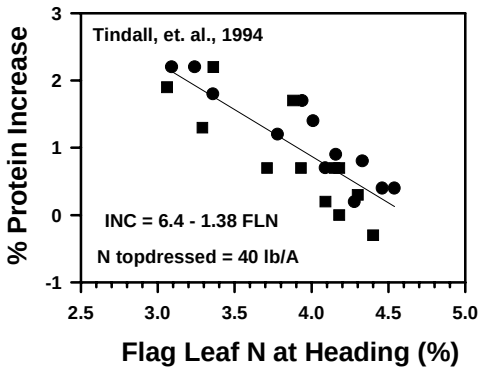
heading, the time when N needs to be applied for protein enhancement. But the N status of the plant can be monitored and a protein estimate at harvest can be obtained prior to heading or flowering by sampling the flag leaf and determining it's total N concentration.

Flag leaf N in some southern Idaho studies has proven to be closely related to wheat protein at harvest (Figure 2). Hard red spring flag leaf N concentrations of about 4.2% N were associated with 14% protein. In other studies involving hard red winter wheat, flag leaf

Figure 3. The protein increase with 40 lb N/A as related to flag leaf N content at heading.

N associated with 12% protein was comparable, about 4.5%.

By providing an early estimate of wheat protein, flag leaf N should be the key to decisions as to whether or not to apply additional N for protein enhancement. If the protein estimate for hard red spring is already close to 14%, it probably isn't cost effective to apply additional N for protein enhancement. If the protein



estimate for hard red spring wheat is considerably below 14% then applying more N should be considered.

The protein increase with additional N is indirectly related to the flag leaf N concentration (Figure 3). That is, the lower the flag leaf N level, the greater the increase in protein when additional N is applied. Terry Tindall and Jeff Stark reported in the early 90's that protein in irrigated hard red spring wheat does not increase much with 40 lb N/A at heading if flag leaf N is at 4.2%. But at 3% flag leaf N the predicted protein increase would be over 2.2% protein.

From Tindall's data it is possible to calculate the predicted protein at harvest with 40 lb N/A. As long as flag leaf N is equal to or above 3.8% N at heading, the 40 lb N rate is predicted to give at least 14.1% protein at harvest (Figure 4). For flag leaf N concentrations increasingly less than 3.8%, the 40 lb N rate would be expected to give somewhat less than 14% protein. For example, at 3.0% flag leaf N the protein at harvest without additional N is predicted to be only 10.9%. With 40 lb N applied at heading (and flag leaf N of 3.0%) the protein at harvest with the predicted protein increase of 2.26% would be only 13.2%.

Therefore, if flag leaf N at heading is less than 3.8%, consider higher N rates if the target protein is 14%, assuming the N is applied with a sprinkler system in order to avoid foliar burn.

Protein Increase with N

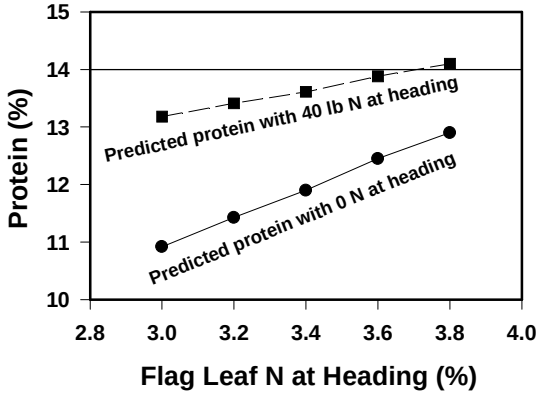


Figure 4. Predicted protein from the flag leaf N concentration and 40 lb N per acre applied and watered in at heading.

As it turns out, the protein increase with N at heading is a function of both the protein level (without more N) and yield. It seems the higher the yield and the lower the protein estimate, the greater the protein increase with additional N.

This was demonstrated in our 1996 research at Parma. The affects of 0, 40 and 80 lb per acre of N (applied dry and watered in with sprinklers at heading) were measured at Parma together with treatments representing decreasing amounts of water applied after flowering. Watering treatments ranged from no additional water applied (0 % ET) to fully irrigated (100 % ET).

With no additional water after flowering, yield averaged only 33 bushels per acre, protein exceeded 17% even with no additional N at heading, and even the highest N rate did not increase protein (Figure 5). When fully irrigated, wheat yield increased almost threefold and protein declined to about 13%. The 40 lb N rate increased protein over 1.2% at the lower protein level and higher yield of the full irrigation treatment.

Similar trials were conducted in other years. Whenever protein averaged near 13% without additional N at heading, only the 40 lb rate at heading was needed to bring protein to the 14% level or over (Figure 6). The higher N rate of 80 lb/A practically doubled the protein increase to levels considerably over 14%. The 80 lb N rate was probably not as cost effective as the 40 lb N rate since the protein premium is considerably less than the discount. However, the protein increase with the

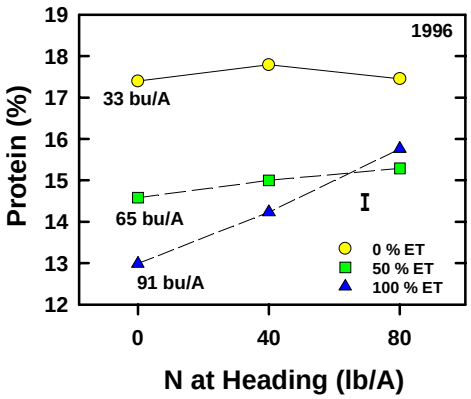


Figure 5. Protein percent as affected by irrigation after flowering and N applied at heading. Parma, 1996.

higher N rate suggests in each of three years that the high N rate was used just as efficiently as the lower N rate for enhancing protein. The protein increase was clearly related to the rate of N used (Figure 6).

Some growers and fieldmen have speculated that higher protein at harvest is possible if wheat is stressed during grain filling. Our research confirms that stress does increase protein at harvest but the increased protein

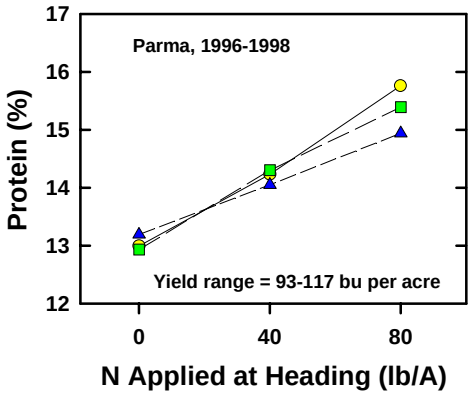


Figure 6. Protein as affected by N applied at heading and watered in. Parma, 1996-98.

comes at the expense of reduced yield. We should not have to sacrifice yield in order to get acceptable protein in hard red wheat.

Yield Increase from Late N

We don't normally count on the N applied at heading or later to be used very effectively by wheat for increasing yield. But yield can be increased marginally with late N when plant N is low. But the more N required for increasing yield, the less N will be available for increasing protein.

Yield increases were measured at Parma in two years with minimal foliar applied N. Yield increased from 5 to 8 bushels per acre with as little as 15 lb/A of N as urea or uran. However, additional N at heading did not increase yield nearly as often as it increased protein.

Flag leaf N not only provides an estimate of protein at harvest, it also indicates whether the plant has sufficient N for maximum yield. Lower flag leaf N values are required for maximum production than are required for 14% protein hard red spring or 12% hard red winter wheat. Roughly 4% flag leaf N is required for both hard red spring and winter wheat production.

Therefore, if flag leaf N at heading is appreciably less than 4%, the cost effectiveness of supplemental N may increase from both a yield and protein increase. Knowing flag leaf N levels then is doubly critical.

Flag Leaf N Analyses

The flag leaf is the last leaf to emerge from the stem. The head emerges (heading) roughly a week to two weeks after the flag leaf emerges depending on the temperature. These tissues need to be collected as close to heading as possible, if not before, and submitted promptly to the lab. The earlier the results can be obtained, the more time there is to determine whether additional N should be applied.

Most of the results in our studies were based on flag leaves collected at heading. We know from our work that flag leaf N concentration changes with time. Flag leaf N starts out with higher levels and the N concentration decreases with time. If 4.2% flag leaf N at heading is needed for 14% protein, then even higher flag leaf N levels are required prior to heading such as flag leaf emergence. At flowering, flag leaf N levels below 4.2% could well be associated with 14% protein at harvest. We have found flag leaf N to decrease from 0.2% N to 0.4% N between heading and flowering. Flag leaf N declines even more rapidly after flowering.

For accurate interpretation of flag leaf N test results, the growth stage at which the flag leaves were collected should be recorded. If flag leaves are sampled between more easily identified growth stages (flag leaf emergence, heading, flowering) then the number of days

from the last or the number of days before the following easily identified stage should be recorded.

Collecting representative flag leaf samples is critical for estimating the protein in the field or area of interest. A minimum of thirty leaves for the area of interest should be collected. The total N concentration needs to be expressed on a dry matter basis.

Most soil, plant, and feed testing laboratories can determine the total N concentration of flag leaf tissues. They may not interpret the results for you. If you have questions regarding the interpretation of your results I'd be happy to work with you (722-6701 Ext. 216).

Barley Stripe Rust

The 1998 season was a disaster for many Treasure Valley barley producers due largely to Barley stripe rust. Yields were down as well from delayed maturity due to cooler than normal May and June temperatures and then higher than normal temperatures during grain filling in early July. Test weights were as low as 26 lb per bushel in barley that under normal conditions is 48 or above. A field or two was actually hayed and used for forage in Malheur Co in order to salvage something of the crop.

Incidence of stripe rust has been sporadic in the last three years. There was no stripe rust in the Treasure Valley in the 1997 season. Stripe rust was present the previous year but occurred late enough not to cause significant damage. Whether stripe rust will be a problem in 1999 depends on weather conditions from here on and levels of inoculum from other areas. To be sure, most of the barley varieties normally planted here are susceptible to this disease. In fact, some of the highest yielding six row barley such as Colter and Maranna are among the most susceptible.

Seed treatment does not provide season long protection. Tilt, the fungicide of choice for treating this disease can not be applied after the awns emerge.

The Idaho Barley Commission has secured a section 18 Emergency Exemption for using Folicur 3.6F fungicide for Barley Stripe Rust control. Applications are limited to 4 oz. of product per acre. Applications may be warranted if rust is found prior to one week after heading. Spring barley in the Cooperative Extension trials was heading the fourth week in May 1998, but heading was later than normal last year.

The key to this disease is early scouting and variety selection. Early scouting enables one to identify the presence of infection early enough for decisions to be made whether control with fungicides is feasible or cost effective. It also provides more time for the decision as to whether to hay the barley or wait and take the grain. If haying is delayed, forage quality may be reduced. Waiting until after awns emerge or later to identify the problem may preclude the use of fungicides. Eventually, variety selection will allow us to avoid the disease, much as we do with stripe rust in wheat.

Only two winter varieties have resistance, Kold and Strider. Kold is commercially available but Strider certified seed will not be available until spring 2000. Bancroft is the only spring barley with known resistance that is commercially available. Orca is another spring variety with resistance but certified seed won't be available until spring 2000. Tango, derived from Steptoe, is another six row with resistance but it has the same poor agronomic characteristics as Steoptoe in poor straw strength and test weight. Certified Tango seed will not be available until spring 2000.

Cereal Leaf Beetle

The Cereal Leaf Beetle is alive and well in western Idaho. Whereas beetle populations were largely confined to eastern Canyon and Ada counties in 1997, they are now present in western Canyon county. Adults have already been found this year in Malheur Co. Mike Cooper, Idaho Department of Agriculture, informs me that adults are now laying eggs.

The beetle larvae, which cause the damage, are yellowish brown but they cover themselves with a mass of dark, slimy, fecal material for protection. The slime is easily shed and comes off readily on pant legs.

The beetle larvae does most of the damage by feeding just on the leaf surface between the leaf veins. Several adjoining veins may be affected. Thus, the feeding is concentrated in strips rather than dispersed and does not extend entirely through the leaf.

There is only one generation a year. After the boot stage the threshold is one larvae per flag leaf. If control is warranted several insecticides are registered. But wheat, barley, and oats can tolerate a fair amount of feeding without it affecting yield.

Control recommendations are available in the Pacific Northwest Insect Control Handbook (available from Ag Publications at 208-885-7982 or your local Coopertive Extension Office). For more details about

the beetle consider ordering "**The Cereal Leaf Beetle – A New Pest in Idaho**" CIS No. 994, also available from Ag Publications.

Beyond the damage that the pest's feeding can do to our cereals, there are important marketing implications. Wheat and barley can't be shipped to California from this area without fumigation, except from December 1-April 1, due to that state's quarantine.

Fortunately, the cereal leaf beetle is susceptible to biological control. Both egg and larval parasites have been used with success in the midwest and Utah to control leaf beetle infestations. Egg parasites have been less effective in Idaho. Larval parasites were released at sites with heavy infestations last spring by Mike Cooper from the Idaho Dept. of Ag. He is surveying this year's larvae for the extent to which they are parasitized. Should you have the leaf beetle in your area and would like to pursue a release of parasites contact Mike Cooper at 208- 332-8620.

Barley Test Weight

The generally poor test weight of last year's barley production in southwest Idaho has played havoc with the succesful marketing of that production. According to the Idaho Barley Commission 1998 Barley Quality Report, the average test weight of barley in the Southwest Idaho district averaged 2.3 lb/bu lower in test weight than the 1997 production. The percent thins increased from 3.2 in 1997 to 9.2 in 1998. Some local feedlots will not accept less than 48 lb test weight and unfortunately, there wasn't much 48 lb barley produced in our area, at least of the six row varieties planted.

We don't have much control over the extraordinarily high temperatures that occurred last year, and our ability to control barley stripe rust is economically limited. But poor test weight can result from more than these factors.

Varieties differ significantly in test weight and the two row barleys typically have 2-4 lb higher test weight than the six row types. But what can we do with barley already planted to insure harvesting barley with the best possible test weight.

Lodging is a major factor in reducing barley test weight. Several management decisions from now to harvest can influence barley test weight.

Avoiding excessive N fertilization can effectively reduce lodging. It is unlikely that barley will require more than 120-150 lb of available N (soil test and fertilizer N combined) per acre for maximum production, unless barley follows a previous cereal crop where residues were returned to the soil If producers are accustomed to injecting N through the irrigation system, be cautious about providing any more than necessary for maximum economic yield. Soil testing early in the season can indicate the residual N available from the previous year.

Avoid excessive watering, especially during periods of high wind. This is easier said than done because the winds aren't always predicted and/or you may not have the flexibility with tight irrigation schedules to withhold water when necessary. For those that do have the flexibility, it can reduce the lodging that occurs.

For furrow irrigated producers, if you must water during periods of wind, consider watering every third or second furrow to get across the field. The increased stem strength of barley near the unwetted furrows may be sufficient to limit or prevent lodging altogether.

For barley that is especially prone to lodging it may be economical to try and control lodging with a growth regulator. The only growth regulator registered for this purpose is ***ethephon***, brand name **Cerone**, which has been on the market for some time now.

Cerone when applied according to the label, shortens the topmost internode of the stem, strengthens the straw, and increases lodging resistance. It may not protect against severe weather conditions that cause lodging of even the shortest and stoutest of barley varieties, but it can limit lodging under more normal conditions and in some cases prevent any lodging.

The window for applying **Cerone** is relatively narrow. It should be applied within the time frame of when the flag leaf emerges and the awns begin to emerge (boot begins to swell). With calm weather, and limited acreage to spray, it is enough time. But this is a windy time of year and opportunities for spraying may be limited.

For this reason it may be appropriate to prioritize the fields that you think will need to be sprayed. Fields could be prioritized by their potential for lodging. Fields with the most dense stands, highest residual N, weakest strawed varieties, greatest exposure to wind, or other predisposing factors would have the first priority to be sprayed. The potential value of the production should also be considered. That way if time is short, or weather precludes spraying all targeted fields within the

label's window, then fields needing it the most would be covered. The results consistently show that the greatest return occurs in fields where lodging would otherwise be the most severe.

Cerone applied **outside the label**, before the beginning of flag leaf emergence or after awns begin to appear, can result in significant yield reductions. The label also suggests that the compound not be applied if the plant is under stress. In all cases, **FOLLOW THE LABEL**.

Finally, despite our best efforts to avoid lodging, these efforts can be overridden by severe weather conditions. **Cerone** can certainly help, but it comes with no guarantees. If lodging occurs despite your best efforts, it may be worthwhile to harvest the lodged and nonlodged grain separately.

Depending on the value of the harvested grain, it may be more beneficial to market the better quality barley (or wheat for that matter) separate from the lodged and poorer quality production. If the barley is not lodged and meets the specifications for the certified ***Idaho Prime*** grade then it may be worth more marketed separately than if it was blended with poorer quality barley with the blend averaging less than 48 lb test weight.

Soft Wheat Protein

You may recall that on several occasions during the last few years that we've tried to relate the concerns of our foreign customers regarding high protein in the soft white wheat that we market from the Pacific Northwest. These high protein contents were in part responsible for the large market share that we've lost to Australia.

The wheat commissions in Idaho, Oregon and Washington responded to these foreign customer concerns by encouraging the customer to specify the protein limits in their tenders. Consequently, Japan now has an upper limit of 10.5% protein in the wheat they buy, and Taiwan has tendered for wheat with protein less than 9%.

Exporters have been able to satisfy these tenders by monitoring the protein in the wheat delivered to them and segregating accordingly. All is well right? The customer gets what he wants and we at least don't lose additional market share. Wrong!

Now comes a concern from recent visits to the Pacific Rim that the protein content in some of our soft white wheat is too low in protein. Dick Fritz, Oregon Wheat Commission Administrator, reported in a recent ***Oregon Wheat*** issue that bakers he'd visited in the Philippines had indicated that although pleased overall with the quality of our wheat, the protein levels were at the low end of what they require. Seems that 9.3 % protein, the average of what they received last year, was lower than they want. There was even talk of putting protein minimums in future wheat tenders.

Then Tom Mick, the Washington Wheat Commission Administrator, returned from his trip to Japan and reported in the **Capital Press** that the Japanese also found some of their purchased wheat to be too low in protein. They prefer protein in the 9-10.5% range and a couple shipments were actually less than 9%.

Producing wheat with over 9.5% protein should not be an issue for irrigated soft white wheat producers. If your protein levels are less than 9.5% then you've got more immediate problems than market share to worry about. It means you've probably sacrificed considerable production from inadequate available N. Available N plays as great or greater role in wheat protein as does the growing season in irrigated wheat.

If our irrigated wheat is optimally fertilized, making the minimal 9.5% protein grade will take care of itself. Even the lower protein varieties such as **Brundage** and **Malcolm** will have higher than 9.5% protein at near maximum yields.

Feed Wheat

What kind of wheat is it? Well it's not generally acceptable for milling or baking as human food due to poor quality, unless of course wheat prices are poor relative to barley or corn. In Canada it is weather damaged, or out of condition wheat, or wheat that otherwise has not been approved for export by the Canadian Wheat Marketing Board because of less than acceptable milling and baking quality.

There is no feed wheat class in our USDA grading system, unlike Canada, yet there is a growing international market for feed wheat. The wheat commissions in the PNW indicate that Japan plans to develop a feed wheat industry eventually amounting to 360,000 metric tons. Korea already buys over a million metric tons. Japan has requested feed wheat from the PNW but we are unable to provide this wheat without a USDA recognized market class.

The advantage for the US is that there would be a means of disposing of the wheat unfit for human consumption, as in weathered, sprouted wheat, that would otherwise be blended by exporters resulting in reduced milling quality. With our wheat market share already suffering from the high dockage concerns of our customers, we don't need the worst of our production added back into the best, a practice now allowed within limits.

On the down side, the price received for feed wheat would likely be somewhere between feed barley prices and food grade wheat. That could mean lower prices for feed wheat producers and reduced incomes.

Regardless of whether there is a feed wheat class for export, there is a substantial amount of wheat fed to livestock domestically. It occurs when either feed grain prices exceed food wheat prices, as they have within the past two years, or price discounts for sprout, dockage or whatever reduces the price below feed grain prices.

Actually, Oregon State University at one time had a feed wheat breeding program. The fact is, yield advances would be more rapid in wheat breeding programs if the milling and baking quality concerns were not a constraint. Whether yields of feed wheat would be sufficiently large to compensate for the reduced price remains to be seen. We no doubt will be hearing more.

Address Corrections

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Acknowledgement

We appreciate the Idaho Wheat Commission's support of this newsletter. If you enjoy the newslwetter, or find that it makes a difference in your enterprise, you might call the Commission office (208-334-2353.

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