



# The Cereal Sentinel

*A newsletter for Treasure Valley cereal producers*

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## Important Dates:

July 7	Parma Research and Extension Center Field Day
July 8	Malheur Station Field Day
November 16-18	Idaho Grain Producers Association Annual Meeting

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)**

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## Eltan Wheat Market

The Washington Wheat Commission has apparently succeeded in cracking the dried noodle market in Taiwan. Eltan, a WSU soft white winter, has excellent brightness, a requirement for these noodles. Some Taiwanese millers actually preferred this variety over the Australian Standard White from Australia. The Washington Wheat Commission has promoted this variety with Taiwan and other countries because they have substantial dryland acreage planted to this variety.

This has been a difficult marketing objective. Australia has taken over much of our market in Taiwan and other countries due in part to its focus on providing wheat with superior milling and baking quality.

While Eltan is not a commonly grown Idaho wheat (No acreage was reported for Eltan in the 1997 Variety Survey conducted by the Idaho Agricultural Statistics Service), nothing precludes Idaho dryland growers from capitalizing on the development.

Eltan is a low rainfall dryland wheat. It lacks the straw strength of irrigated soft white varieties. It has excellent emergence from deeper plantings frequently necessary in the dryland system. It also has excellent winter hardiness and snow mold tolerance.

We evaluated Eltan in the Cooperative Extension Dryland Variety Performance Trial at Midvale for three years. It yielded as well as Stephens. Protein was significantly lower. Rainfall exceeded normal over this period and there was no snow mold to limit the production of less tolerant varieties. Test weight was at least as good as Stephens.

The flour quality of Eltan for noodles is good provided protein is in the 11-13% range. Unfortunately, protein in most dryland systems fluctuates from high protein (preferred for noodles) in dry and less productive years to low protein in wetter more productive years. How the trade plans to deal with this fluctuating quality remains to be seen.

The logistics of supplying a variety preserved commodity with a specific protein range from open noncontracted acreage will be a challenge. On farm storage would facilitate the marketing of this variety.

Even if we don't grow Eltan in our dryland acreage, we stand to benefit if other states can market variety preserved wheat stocks that otherwise contribute to the stocks we market. Recovering even a small part of the market lost to Australia would be to our advantage.

## Club Wheat Update

The Washington Wheat Commission reports that Japan will increase the percentage of club wheat in the Western White Wheat they import from the current 20% to 25% beginning with August tenders. The change follows a previous increase in 1995 to 20% from 10%. The Washington and Oregon team actually promoted an increase to 30%, but the Japanese are apparently concerned about potential shortfalls of club wheat given the erratic nature of dryland wheat production.

As you may remember, the Oregon and Washington Wheat Commissions had persuaded Japan to make the 1995 change in order to increase the quality of the Western White Wheat exported to them. That practically all the club wheat is produced in Oregon and Washington may have had something to do with it as well.

Japanese millers seemed to be pleased with the previous increase to 20%. It's not clear what a further increase to 25% will do for them. It's also not clear whether they have purchased any more wheat, or whether we've lost less of the market with the improved quality.

Japan buys 35 million bushels annually, the increase from current clubs marketed would be about 1.8 million bushels. With the change, estimated usage of club wheat by Japan alone would be almost 400,000 metric tons, or about 2/3 of the 1997-98 club wheat production in the two states.

Premiums for club wheat have recently run about \$.03-.15 a bushel. With extensive winter kill of club wheat, the premium has been as high as \$1.50 a bushel.

A member of one Japanese trade team indicated to me when asked that the change to 20% club had improved the consistency of the wheat that they imported from the PNW. They apparently are paying more for the wheat since there has been a small premium for the club component in the wheat bought. The best possible scenario would be for them to not only pay more, but buy more as well. This is the only way for non-club soft white wheat producers to restore a market lost to them with the club portion increase.

Club wheat was evaluated in the Cooperative Extension Dryland Variety Performance Trials at Midvale in 1996 and 1997. Club wheat varieties tended to be less productive than the common soft whites by about 10%. Mean yields for the two years were 53

bu/A in 1996 (an unusually wet year) and 34 bu/A in 1997.

## Barley Stripe Rust

There was no Barley stripe rust in the Treasure Valley in the 1997 season. Stripe rust was present the previous year. Conditions during this last May (wet and humid) were highly favorable for the disease. There was extensive infection in central and northern California, the Willamette Valley, western and eastern Washington, and the Horse Heaven Hills area of Oregon. Stripe Rust is present in Western Idaho on both winter barley and spring barley.

Incidence of stripe rust has been sporadic in the last two years. The stripe rust that occurred in 1996 resulted from fairly late infestations of inoculum. Seed treatment does not provide season long protection and would likely not control late infestations. Six row barley tends to be more susceptible than two row types. Few if any spring barley varieties have resistance to this disease.

Tilt, the fungicide of choice for treating this disease can not be applied after the awns emerge. Winter barley is far enough along that treatment with a fungicide is not warranted. All winter and most all spring barley is well past this stage as well.

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. Most of the spring barley in western Idaho is well beyond the threshold growth stage, unless it was very late planted (mid to late April).

At least one field in the area has been destroyed (swathed and used for hay) due to this disease. The key to this disease is early scouting and variety selection. Early scouting enables one to use fungicides early enough to protect the flag leaf. Variety selection will allow us to avoid the disease altogether, much as we do with stripe rust in wheat. Two winter varieties have resistance, Kold and Strider. Kold is commercially available but Strider will not have certified seed 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.

## 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 last year, they are now present in western Canyon county.

The beetle larvae 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.

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 Cooperative 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. Larval parasites were released at sites with heavy infestations this spring by Mike Cooper from the Idaho Dept. of Ag. 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.

## The Last Irrigation???

Many growers wish to know when to schedule the last irrigation for winter and spring wheat. This is the most frequently asked question in June and early July. Watering later than necessary wastes water, costs money, especially if the water is pumped or delivered with a pressurized system (sprinklers), increases black tip and lodging, and reduces test weight. The result is less net income to producers.

Most producers irrigate according to the appearance of the leaves. As long as there are green leaves present, most assume that the crop still needs water for normal growth and development. But the appearance of the crop canopy and lower leaves can be deceiving. It does not have much relation to what is going on in the head. The grain can be much closer to maturity than the green leaves within the canopy may suggest.

Once wheat has reached physiologic maturity, the grain kernel stops accumulating more weight and begins to dry out. In terms of kernel development, this most closely corresponds to the late soft dough or early hard dough stage. No additional water is needed beyond this stage regardless of soil moisture content.

There are easily identified plant markers or visual clues that indicate this growth stage and some which serve notice that physiologic maturity is very close. Knowing these signs can be helpful in avoiding a wasteful if not harmful irrigation.

Agronomists have evaluated a variety of visual clues for their relation to physiologic maturity. The loss of green color from various plant parts is perhaps the most practical and useful of these clues.

Green color loss from various parts of the **head** (glumes, rachis, grain), **flag leaf** (the topmost leaf) blade or sheath, the **peduncle** (portion of stem just below the head to the topmost node), and the **top node** (below the peduncle) have all been evaluated for their relation to physiological maturity.

Of these visual signs, the loss of green color from the **head** parts is most closely related to physiologic maturity. Glumes (the bracts or chaff which wrap around the kernel), rachis (the stem portion of the head), and kernels lose their color at the same time. Awns (the beard) can lose its green color at the same time or a day or two before other head parts depending on the variety.

Loss of green color from the flag leaf blade occurred 3-8 days prior to physiologic maturity in one study. This visual sign could serve as a useful indication of the impending physiologic maturity. About 95% of the final kernel dry weight occurred by the time green color was lost from the flag leaf blade.

The wheat plant will continue to use moisture between the time of green color loss from flag leaf blades and physiologic maturity (loss of green color from the head). But it is not at all clear if the moisture used is necessary for completion of kernel filling. Much of the moisture lost is simply evaporated from the soil or plant. Kernel moisture content drops rapidly during this time.

In the northern plains, wheat can be swathed at the time of green color loss from the flag leaf without affecting production or quality of spring wheat. This suggests that some filling of the grain occurs even after swathing and before the leaves and stem completely dry. If additional grain fill occurs after swathing, we can assume that grain fill occurs if the plant is not swathed and is left standing, even if soil moisture is low

There is evidence in the literature of grain filling even under low moisture conditions. These reports suggest that wheat during the last of grain filling is not particularly sensitive to moisture stress. All the more reason to be very conservative in the application of water at the end of the season.

The soil moisture lost between soft and hard dough grain filling growth stages has been estimated to be 1.4" for spring wheat in the northern plains states. But those reports do not indicate whether that moisture loss was actually necessary for production.

In our studies, we measured soil moisture loss of 2.4" in 1986 and 1.6" in 1987 from soft dough to maturity. Much of this loss occurred after the hard dough stage and could not have contributed to grain fill. Therefore I tend to view the moisture loss after soft dough with scepticism. I do not think it reflects the actual moisture required to fill the grain beyond the soft dough stage.

In the past a common rule of thumb was to provide 2" of available soil moisture beyond the soft dough stage. I question the wisdom of this recommendation. If spring wheat can be swathed at soft dough without sacrificing yield, I don't know why we can expect additional water in any amount to be needed for additional grain filling when the plant is still attached to its root system.

I spoke recently with Dr. A.B. Frank, USDA-ARS, whose research involves the development of the wheat plant at all growth stages, but particularly during grain filling. He likewise believes that moisture available (or applied) at the soft dough stage is largely a waste. The wheat plant will serve as a wick and lead to soil moisture loss even if the plant is mature. The soil moisture loss that we measure between the soft and hard dough stages is not used effectively by the plant.

If Dr. Frank is right, then all we really need is enough available moisture to support growth between the milk and soft dough stages. That amount is only 1.4" according to research in the upper plains. A watering of 1.5" to 2" at the milk stage should then be all that is necessary for maximizing grain filling and yield.

Wheat kernels fill in such a way that the largest kernels fill first and the very smallest last. It is very likely that the grain fill that occurs at the very end of the grain filling process is confined to those smallest kernels which we may not recover at harvest anyway.

To summarize, loss of green color from the head (kernels, bracts, or rachis) is the best visual indicator of physiologic maturity. Loss of green color from the flag leaf blade precedes physiologic maturity, is closer to the soft dough stage and additional water is probably not needed beyond this point, regardless of soil moisture conditions. Wheat in the milk stage probably does not need more than 2" of available soil moisture beyond the milk stage. Wheat producers can avoid unnecessary irrigation costs by using these visual clues for scheduling their last irrigation.

## Dockage

Dockage has been a problem for US exported wheat for some time. Many importing countries complain about the dockage levels of our wheat as compared to that exported from Canada or Australia. Their wheat is traditionally cleaner because practically all of it is cleaned prior to export. They clean their wheat in Canada because they have to. So much wheat is swathed and rained on that dockage would be very high otherwise. In contrast, little of our wheat is cleaned, provided there is no tolerance to meet.

The US is known for its dirty wheat. We frequently address the situation by suggesting that importers specify the grade they want to purchase and

the dockage tolerance. We then supply wheat that just meets the specs. But Canadian wheat may be delivered that is cleaner even than what the importer may specify.

The dockage discount is an issue that should be a continuing concern to producers as the harvest season approaches. Despite the installation of cleaning equipment by exporters, the discounts for dockage are essentially unchanged from last year.

As you recall, discounts for dockage (the non-grain material that is easily removed during standard milling) increased substantially as Japan and other importers began to lower the dockage tolerance specified in their tenders. The tolerance was reduced from as high as 0.8% to 0.5% for Japan and from no upper limit to 0.4% for Taiwan. The dockage discounts have apparently resulted in less dockage and cleaner wheat delivered for export.

The discounts amounted to over \$1 a bushel for some of the dirtiest wheat delivered. Those discounts are bad enough with good wheat prices. With current prices well below the costs of production, producers can not afford significant discounts for dockage.

Dockage can be controlled or minimized. A good deal of dockage results from lodged wheat when extra plant material must be processed by the combine. Controlling lodging with appropriate variety selection and cultural practices, optimum water and nitrogen management, and use of a plant growth regulator can appreciably reduce the dockage in harvested wheat.

If lodging is concentrated in areas that can be conveniently harvested separately, then it may be useful to market them separately as well. If lodging occurs, dockage may not be the only quality problem. Test weight may be lower and black tip or sprout higher resulting in a lower USDA grade. The lower price due to dockage and lower grade can be appreciable with all the problems associated with lodging.

Marketing as animal feed, where tolerances are not as great, may be more economic than marketing as human food. This is probably true this year regardless of quality since feed grains are higher priced than wheat for export. In other years when wheat is higher priced than feed grains, the discount for dockage and lower grade may exceed the difference in food and feed wheat price. In that case the wheat marketed as feed would bring the better price. In any case, be sure and check local feed prices before selling wheat for export.

Some elevators can accommodate higher dockage wheat if they know the quality of the wheat to be delivered. If producers know the wheat is likely to have

higher dockage it can pay to inform the local elevator. Some elevators can segregate higher dockage wheat from several growers, clean at little if any expense to the growers, and reduce the dockage for all using the segregated storage. But elevators need to know before hand the nature of the wheat to be delivered so that it can be segregated with similar high dockage wheat. Once high dockage wheat is comingled with wheat of better quality, there is little the elevator can do but pass on the full discount to the producer.

Dockage every year undermines the profitability of our production. Appropriate combine settings, minimizing lodging, and heads up marketing can increase the returns to producers.

## Warrior

Russian Wheat Aphids are present this season. Late planted barley seems to be particularly attractive to them.

Warrior®, a new insecticide from Zeneca Ag Products, has received an emergency exemption for use in controlling Russian Wheat Aphids on barley. The

maximum rate is 3.84 fl oz per acre. Two applications can be made per season. It is a restricted use pesticide that can be aerielly applied provided it is applied no closer than 150 yards from streams, ponds, lakes, rivers, springs, swamps, bogs, marshes or irrigation canals containing water year round.

Most of our barley is beyond the point where it could benefit from the spray. Furthermore, no application is allowed within 30 days of harvest. Only the late plantings of barley in southwest Idaho should be considered for treatment with this product. In any case, check the label for full details. For questions regarding the exemption contact Kelly Olsen at 208-334-2090.

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