

AGRICULTURAL



HORIZONS

contemporary issues for agriculture

May 2002

The Pacific Northwest Direct Seed Association By Tanya Wojtowych

“It was an outstanding year for the Pacific Northwest Direct Seed Association,” summarized Russ Zenner, Genesee, ID, outgoing PNDSA President. “We set an ambitious agenda and accomplished more than we imagined possible,” he added.

On January 17, 2002, PNDSA conducted its second Annual Meeting during the Northwest Direct Seed Cropping Systems Conference in Spokane. Over 450 attended to hear the accomplishments of the past year, listen to Dr. Jim Cook’s inspiring presentation, *Retooling Agriculture*, elect officers and learn the details of an agreement made between PNDSA and Entergy Corporation, one of the nation’s leading utility companies. Entergy’s offer to purchase 30,000 tons of CO₂ emissions from PNDSA over a 10-year period is the first lease agreement for offsetting carbon dioxide emissions and has engendered interest from around the world.

“This project opens the door to tremendous potential for the future,” announced Karl Kupers, incoming president and lead in the negotiations. “We are interested in leasing carbon dioxide offsets, sequestered in the soil, rather than selling them and permanently transferring risk to the landowner. The positive implications this arrangement has for farmers, forward-looking industries, and the environment is exciting. PNDSA is proud to be involved in this unprecedented partnership between farmers,

major industry and an environmental group. Such cooperation is critical to *retooling agriculture*, which must occur to ensure survival of the family farm business, the fabric of rural America and ultimately a higher quality of life for everyone.”

Environmental Defense (ED), a national environmental organization, brought the two entities together early last summer. A Letter of Intent was signed on January 15 and the final contract between Entergy and PNDSA was finalized on April 15. PNDSA will circulate a draft grower contract to its membership early this summer. Those interested in participating in the program can offer up to 100 acres of direct-seeded land. They will be paid according to the acreage offered and the number of years those acres have been direct seeded (Acres x Years direct seeded x .15 tons/acre/year x Price). The price will be approximately \$7.34 per ton. Growers must agree not to till for the next 10 years or burn the designated acreage. The land cannot be contracted to any other party until the end of the contract; however, at that time, the grower can lease, or sell at his discretion, any credits that were sequestered since the lease was

Inside this issue

<i>The Pacific Northwest Direct Seed Association</i>	1-3
<i>First Year Results from the Spokane County Direct Seeding Project</i>	4-8
<i>Seedbed Preparation For Forage Seedings</i>	9
<i>Build On Our Strengths to Compete</i>	10

signed.

According to Karl Kupers, PNDSA and its membership have assumed a great responsibility. “So many have tried to accomplish an agreement similar to this one—but to date, ours is the first that has reached fruition. The success of our project will be determined by the integrity of the growers who participate. I am convinced you couldn’t find a finer group.”

The potential to store carbon in the land is a bonus, but not the primary reason for adoption of the direct-seed method of farming. Direct seed cropping systems are a win-win scenario for farmers and the environment alike because the cropping system minimizes the disturbance of soil before planting, essentially stops soil erosion from wind and water and saves fuel and time. The residue left on the soil surface provides greater habitat for birds and other wildlife and facilitates the buildup of organic matter, which improves soil quality and potentially, increases yields. However, potential benefits come with real financial and economic risks, especially in the Pacific Northwest where direct seed cropping systems are more risky and less attractive to growers than in other regions of the world. The lease agreement between the PNDSA and Entergy is one way to offset the financial risk and to encourage growers to adopt direct seeding.

The mission of PNDSA is to facilitate adoption of economically viable and environmentally sound direct seed cropping systems. So, just as sequestering carbon is only one of many benefits derived from direct seeding, eligibility to sell carbon offset credits is only one of the many benefits of PNDSA membership. The Association was formed in 2000 with the goal of increasing the number of direct seeded acres in the Pacific Northwest to 2 million by 2005. In two years, membership has topped 370 and represents more than 500,000 acres of farmland. The Association was not formed to duplicate the efforts of other groups. However, judging by the reception it has received from growers, special interest groups, regulatory agencies and many others, it apparently is filling a void.

PNDSA’s primary objectives are to facilitate information exchange, access funding, coordinate research efforts in accordance with grower needs, influence regulations and public opinion, seek out value-added opportunities, and develop incentives for farmers who are facing the challenges of transition.

To facilitate communications PNDSA has initiated a quarterly newsletter, *Direct Link*, established a website at www.directseed.org and is in the process of creating an interactive *Quality of Life* presentation designed to demonstrate the agronomic, environmental, and economic benefits of direct seed cropping systems. A *Quality of Life Tour* at the end of June, funded by a grant from the Bullitt Foundation, will bring together environmental groups, regulators, journalists and others with the ability to influence agriculture to view direct seed cropping systems in eastern Washington and Idaho. Participation will be by invitation only and will focus on individuals from areas or disciplines unfamiliar with PNW agriculture. The primary objectives of the tour are 1) to educate those who may not be aware of the many benefits of direct seed cropping systems and, 2) provide a forum for individuals from diverse entities to interact and realize how they can work together toward a common goal.

To forward research efforts, PNDSA participates in planning the Northwest Direct Seed Cropping Systems Conference and has a seat on the STEEP research advisory committee. The Association conducted a survey to assess grower needs and is staging a research forum and round table for public and private researchers on March 4 to discuss the needs, objectives, and direction of direct seed research. PNDSA also supported the publication of *Retooling Agriculture*, a report of public and private direct seed cropping systems research underway in the PNW.

In the public policy arena, PNDSA directors have made presentations to many diverse groups ranging from the Seattle Chamber of Commerce to Pheasants Forever; they have been guest speakers for University courses and explained to EPA burn forums why burning must be maintained as a grow-

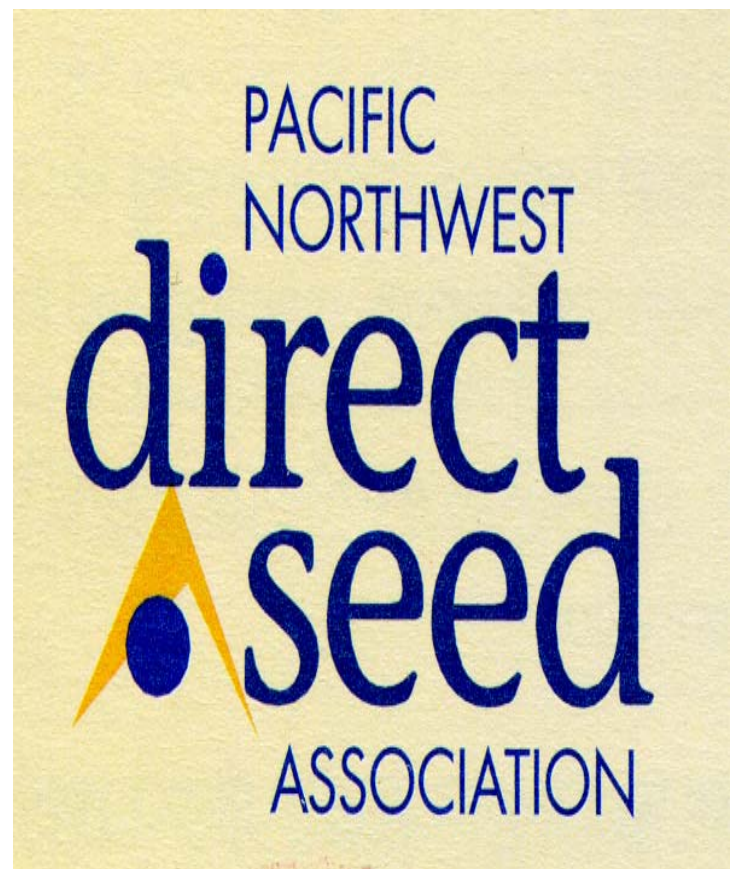
ers' tool. The Association is actively working to support Federal Crop Insurance reform to better meet the needs of PNW growers. Dick Wittman, PNDSA Secretary, spearheaded the effort to improve provisions such as unit structuring, dockage handling and acreage reporting. Dick also wrote *The Untold Story on Farm Program Payments*, which was readily picked up by the press and used to educate consumers on the fallacy that a few "big farmers" are getting rich on government subsidies. Recently, Russ Zenner was one of three farmers in the United States invited by Monsanto to discuss strategies to facilitate adoption of direct seed cropping systems.

Karl Kupers, Harrington, WA and Steve Riggers, Nez Perce, ID have been most influential in pursuing value-added opportunities for direct seed farmers. They have worked with *The Food Alliance* and *Salmon Safe* to establish an evaluation process that allows direct seed farmers to participate in labeling and marketing programs that reward environmentally sound farming practices. *The Food Alliance* and *Salmon Safe* develop standards and markets for their certified, value-added products that should garner higher prices for farmers.

The Association prides itself in the partnerships and many unique alliances it has established in two short years. PNDSA was formed to fill a void and has demonstrated its value by bringing together entities that historically have not worked together to benefit agriculture. Not wanting to depend on growers' dollars, PNDSA is in the process of establishing partnerships with entities sharing common goals. Monsanto became PNDSA's first Founding Partner early last year. The McGregor Company solidified its Founding partnership this year. Farm Credit Services, BASF, Uniroyal, and The Food Alliance have signed on at the Associate Partner level. In addition to partnerships, the Association has fostered numerous cooperators including Environmental Defense, Environmental Protection Agency, Natural Resource Conservation Service, Conservation Technology Information Center (CORE 4), National Association of Conservation Districts, no-till associations around the world and various commodity groups. Partnerships such as

these are invaluable in building the future. PNDSA also held officer elections. The results: Karl Kupers, Harrington, WA, President; Tim Melville, Enterprise, OR, Vice President; Dick Wittman, Culesac, ID, Secretary; and John Aeschliman, Colfax, WA, Treasurer. The entire board of directors is a dedicated group of leaders who have donated countless hours to achieve the success of the young organization. It is no wonder 2001 exceeded all expectations—2002 promises even greater achievements.

Tanya Wojtowych has been executive director of PNDSA since September of 2001. Prior to this position she co-founded and worked for Agriculture Development Group, Inc. a pest management research and consulting company. She was also Director of Research and Information for the USA Dry Pea and Lentil Council. You may reach her at the Pacific Northwest Direct Seed Association, PO Box 4262, Pasco, WA 99302. Phone (509) 543-2054. Website www.directseed.org or E-mail juliana@moscow.com



First Year Results from the Spokane County Direct Seeding Project

By Diana Roberts

The Spokane County Direct Seeding Project is a grower-driven project funded by a three-year grant from the USDA-SARE (Sustainable Agriculture Research and Education) program (see Ag Horizons May 2001). This grant also funds the Northwest Crops Project in Whitman and Garfield Counties.

Growers in the annual cropping zone (18 to 22 inches precipitation) of Spokane County have identified residue management as a primary challenge to successfully adopting direct seeding. Seeding through heavy residue can be challenging, especially in the spring when thick winter wheat straw tends to keep the soil cold and wet. The growers participating in the project identified specific questions they wanted answered, and designed their own trials to solve them. Not surprisingly, most of the questions relate to residue management.

The growers conducted their trials in replicated on-farm testing strips in 2001. We have analyzed the results, but consider them preliminary as they are from one season only, so you should use them for decision-making only with extreme caution. At this point, the results only show what effect the treatments had on a specific farm in one specific season, which was a drought year. Each grower will repeat the trial for two more years so we can better develop a picture of how the treatments work over different seasons. We will then publish yields and economic data.

David Ostheller (Fairfield) is testing four residue management treatments on winter wheat stubble for their effect on spring stand establishment and crop yield. The treatments are 1) mowing, 2) fall harrowing, 3) fall disk-rip plus spring harrowing, and 4) standing stubble.

Table 1. Data for Harrington spring barley. Trial seeded with a Great Plains 3010 drill into 80 bu winter wheat (Madsen) stubble.

Treatment	Stand (plants/3 ft single row)	Test wt (lb)	Yield (t/A)	Adjusted return (\$/ A)**
3 - Fall disk rip + spring harrow	32 a*	53.5 a	2.1 a	164.35 a
1 - Fall mow (6 in high)	33 a	53.5 a	1.9 b	147.13 b
4 - Standing stubble	30 a	53.3 a	1.8 bc	149.58 b
2 - Fall harrow (2 passes w/ 10 bar flex harrow)	34 a	53.0 a	1.7 c	138.18 b
Least significant difference – LSD (0.05)	5.2	1.1	0.1	12.2
Coefficient of variation – CV (%)	5.0	0.6	2.4	2.56

* Treatment means within columns followed by the same letter are not significantly different at the 95% probability level ($P < 0.05$)

**Adjusted return (\$/A) is the gross economic return on a treatment less the cost of the residue management treatment *only* (no seeding, herbicide, fertilizer, harvest costs). Used *total costs* that include ownership, depreciation, fuel, maintenance, wear and tear on the equipment. Figures were: Mowing - \$10.78, Two harrowings - \$5.50, Disk rip \$10.00 (grower estimate) + harrow - \$2.25, Standing stubble - \$0

First year conclusion

Fall disk rip plus spring harrow did not improve stand establishment, but was the most economic treatment in 2001, primarily because of significantly greater yields. Data does not account for erosion (if any), weeds, soil health criteria etc. Trial is being repeated, with weed counts, in 2002 to provide extra information.

Larry Tee (Latah) is comparing different stubble heights for their effect on the following direct seeded crop, to test the theory that one should not have seeding problems if the standing stubble is shorter than one's drill row width.

Table 2. Data for Madsen winter wheat seeded with a chisel drill – paired 4-inch rows on 7 inch center spacing – into 45 bu Wawawai spring wheat stubble. Short treatment stubble cut with a combine after harvest.

Treatment	Stand (plants/3 ft of two 4-in rows)	Yield (bu/A)	Test wt (lb)
1 – Tall stubble (20 inches)	56 a*	55.7 a	60.2 a
2 – Short straw (6 inches)	52 b	55.5 a	60.2 a
Least significant difference – LSD (0.05)			
	3	6.9	0
Coefficient of variation – CV (%)			
	1.4	3.5	0

*Treatment means within columns followed by the same letter are not significantly different at the 95% probability level (P<0.05)

First year conclusion

Differences in stand establishment (opposite to what we expected) were probably due to added survival of spring wheat volunteer in the tall stubble. Due to the early snow in fall of 2000, we took plant counts the following spring and could not differentiate between spring and winter wheat seedlings. For yield, there was no difference between residue management treatments in 2001. Data does not account for any other criteria than shown. Trial is being repeated in 2002 to provide additional information.

Glenn and Bryan Dobbins (Four Lakes) are testing a commercial residue digester called Biocat™. The product is not a microbial solution, but a nutrient mix that stimulates the growth of microbes found naturally in the soil. They apply Biocat to winter wheat residue following harvest, and look at how it affects stand establishment and yield of direct seeded fall and spring crops.

Table 3. Data for Site 1 - Baroness spring barley Trial seeded with a Concord air drill with Anderson openers on 4 inch paired row on 10 inch spacing into 45 bu Eltan/Madsen residue. Residue treated with Biocat (35 oz/Acre) in the fall. Residue samples taken in the fall (2 per plot) and March 23-26, 2001 (2 per plot). Stand counts of barley taken May 29, 2001.

Treatment	Fall residue (g/m ²)	Spring residue (g/m ²)	Stand (plants/3ft of 2 rows)	Yield (t/A)	Test wt (lb)
1 – Biocat no disk	406.8 a*	244.6 a	54 a	1.4 a	52.8 a
3 – No Biocat no disk	328.5 b	270.9 a	55 a	1.4 a	52.3 a
4 – No Biocat + disk	171.2 c	239.6 a	54 a	1.1 b	52.0 a
2 – Biocat + disk	279.9 b	222.8 a	52 a	1.1 b	52.0 a
Least significant difference – LSD (0.05)					
	72.5	82.8	4	0.2	0.8
Coefficient of variation – CV (%)					
	15.3	21.2	5.0	11.7	1.0

* Treatment means within columns followed by the same letter are not significantly different at the 95% probability level (P<0.05)

Table 4. Summary analysis for the Biocat and disking treatments in spring barley.

Treatment	Yield (tons/acre)
Biocat	1.26 a†
No Biocat	1.25 a
No disk	1.40 a‡
Disk	1.12 b
Disk	1.12 a¶
Biocat	1.26 a

† Application of Biocat had no impact on yield

‡ Not disking increased yield

¶ There was no difference between applying Biocat and disking (i.e. Biocat did not change the effect of disking)

Table 5 – Site 2. Data for winter wheat (Eltan/Madsen). Trial seeded with a Concord air drill with Anderson openers on 4 inch paired row on 10 inch spacing into 45 bu Alpowia residue that was treated with Biocat (35 oz/Acre) in the fall prior to seeding. Residue samples taken in the fall prior to seeding (3 per plot) and March 27, 2001 (2 per plot). Stand counts of wheat taken March 23, 2001.

Treatment	Fall residue (g/m ²)	Spring residue (g/m ²)	Stand (plants/3ft of 2 rows)	Yield (bu/A)	Test wt (lb)
1 – Biocat	231.6 a*	130.9 a	45 a	40.6 a	62.0 a
2 – No Biocat	197.1 a	153.8 a	41 a	40.1 a	62.0 a
Least significant difference – LSD (0.05)	55.9	77.1	7	2.7	0
Coefficient of variation – CV (%)	14.8	30.9	8.9	3.8	0

*Treatment means within columns followed by the same letter are not significantly different at the 95% probability level (P<0.05)

First year conclusion

Biocat applications did not change residue levels or yield in either trial in 2001. On the other hand disking significantly reduced yield compared with no disking. Data does not account for erosion (if any), weeds, soil health criteria etc. Trial is being repeated in 2002, on exactly the same plots, to determine if there is any cumulative effect of the Biocat.

Randy and Jeff Emtman (Rockford) have been successful at taking out bluegrass stands by direct seeding oats into them. However, they haven't always been able to achieve an acceptable test weight on the oats, so they are looking at a fall fertilizer regime to try to get adequate test weight while allowing them flexibility to keep the grass stand in if it looks good in the spring.

Table 6. Data for Waldern oats seeded into bluegrass sod using a Flexicoil 6000 with the Barton opener. Nitrogen fertilizer applied in the fall as dry 30-0-0-6. No other fertilizer used. Stand counts of Waldern oats taken May 29, 2001.

Treatment	Stand (plants/3ft of single row)	Yield (lb/plot)	Test wt (lb)
1 – 50 lb N	53 a*	1792†	33.0†
2 – 100 lb N	53 a	1839	32.5
3 – 150 lb N	49 a	1753	32.0
Least significant difference – LSD (0.05)	8		
Coefficient of variation – CV (%)	9.4		

*Treatment means within columns followed by the same letter are not significantly different at the 95% probability level (P<0.05)
 Due to harvesting error only Rep 4 was recorded and no ANOVA (analysis of variance) performed

First year conclusion

We could not do a statistical analysis on yield or test weight due to a harvesting error where we mixed grain from adjacent plots in the first three reps. Trial is being repeated in 2002 to provide extra information.

Table 7. Data for winter wheat (Hybrid 7817 SWW) direct seeded into 850 lb canola IMC 105 stubble using a Conserva-Pak drill. Due to early, heavy snow, the rotary subsoiler treatment was done in March 2001 after the winter wheat was already planted.

Treatment	Yield (bu/A)
1 – Rotary subsoil	28.7 a*
2 – No subsoil	26.4 a
Least significant difference – LSD (0.05)	
	2.4 bu
Coefficient of variation – CV (%)	
	5.0

*Treatment means within columns followed by the same letter are not significantly different at the 95% probability level (P<0.05)

First year conclusion

Rotary subsoiling did not affect yield in 2001, but as there was no runoff during the winter, the subsoiling would not likely have made a difference even if done in the fall. Data does not account for any other criteria than shown. Trial is being repeated, with moisture measurements, in 2002 to provide extra information.

Upcoming events

The 2002 Spokane Direct Seeding Project tour will be June 25. Lincoln and Spokane growers formed Direct Seed Discussion groups. You may obtain annual reports of the project or details on all these events from the web-site <http://www.spokane-county.wsu.edu/> (click on the farming icon then the direct seeding link), or from the project contacts:

Diana Roberts – Project Leader (phone 509-477-2167, e-mail robertsd@wsu.edu);
 Dennis Pittmann – Project Technician (phone 509-397-4636 ext 115, e-mail pittmann@wsu.edu);



Glenn & Bryan Dobbins Concorde Air Drill

Seedbed Preparation for Forage Seedings

By John Fouts

Seedbed preparation has been called the most important step when seeding both legume and grass forages. Good seedbed preparation includes seeding depth control, proper timing of seeding and competition control.

When planning a forage seeding, you should plan far enough ahead to give yourself the time it takes to perform the needed operations. Start with the desired time of seeding needed for good establishment and work backwards. Be sure to allow for unpredictable weather and machinery maintenance. A delay could rush you too much to do a good job of seedbed preparation and put your seeding too late for optimal conditions.

Since forage legume and grass seeds are so small, they need all the advantages in seeding conditions they can get. This means seed-to-soil contact, adequate moisture, and a seeding depth that will allow the seedling to emerge before it runs out of energy reserves. Small seeds have limited energy reserves.

The recommended seeding depth for most forage legumes and grasses is ¼" to ½". Different soils will require different seedbed preparation methods to ensure this depth. The most common reason for forage seeding failures is seeding too deeply. And the most common reason for seeding too deeply is that the seedbed is too soft. Pack, pack, pack and pack again, especially in coarse textured soils. A "rule of thumb" is that when you walk across a finished seedbed, your footprints should be no more than 1" deep.

On the other hand, seed that is seeded too shallow may not have the necessary seed-to-soil contact to keep it supplied with moisture. Broadcast seedings sometimes have this problem. Usually if the seedbed has the proper firmness, a very light harrowing or dragging with a piece of chain link fence after broadcasting the seed will result in the proper seeding depth and seed-to-soil contact. The timing of seeding and hence seedbed prepara-

tion is dependent on moisture availability. Of course, this is of less concern in irrigated situations. In non-irrigated situations it can be as critical as seeding depth, so plan ahead. For forage legumes we also need to be very aware of the temperature. Legumes will not germinate at as low a soil temperature as most grasses. Also, legume seedlings cannot survive as much cold air as grass seedlings. There is a very narrow window when forage legumes need to be seeded. The seedbed needs to be warm enough for germination, but not too dry for seedlings to survive.

For non-irrigated grass seedings, fall dormant seeding works well in the lower precipitation areas. What this entails is having the seedbed prepared in the fall and seeding after the soil temperature has gone below 42-45°F. The seeds sit dormant and imbibe moisture during the winter. As soon as the soil temperature rises enough, the seeds begin to germinate and get a head start on weeds.

Competition control during seedbed preparation includes mechanical control and/or chemical control. The type and severity of the weed population will determine whether herbicides are needed or not. For an herbicide to be effective, it must be the right herbicide and be applied at the right time. Be sure to follow the label. The biomass from weeds needs to be eliminated. Burning is one method, but local restrictions and guidelines must be followed. One method of eliminating the previous crop is very close harvesting or grazing followed closely by your mechanical seedbed preparation. Another competition control method is as simple as not seeding a companion crop. Research has shown that the advantages of a companion crop are usually outweighed by the competition.

Remember when contemplating a legume or grass seeding, plan ahead and seed at the proper depth of ¼" to ½". Sometimes "Mother Nature" has a hand too. *Good luck!*



Build On Our Strengths To Compete
 By Chuck Hassebrook

Family farms and ranches can thrive in an international economy if public policies nurture their competitiveness and push for fair trade practices worldwide.

The potential for Brazil to bring as much as 200 million acres into crop production strikes fear in the hearts of American farmers. But there are practical strategies we can adopt now to enable American farmers to compete.

Brazil's advantages include cheap labor and productive land at dirt-cheap prices. For industrialized livestock producers, very sparsely populated areas offer potentially enormous cheap grain supplies with almost no neighbors to sue over odors.

To thrive, we must build on our strengths and avoid steps that exacerbate our disadvantages. First, we must not unnecessarily inflate our land prices. They will ultimately come down if they are too high. But inflating them now increases the cost and pain of that adjustment down the road. An effective farm program payment limitation would stop mega farms from using farm program checks to drive land prices higher.

Second, we must seek labor standards in future trade agreements. Doing so helps the poor in all parts of the world, and it limits the trade advantage any nation or business can gain by exploiting people.

Third, we must develop livestock production systems that our people and communities can embrace. Let's get our land grants colleges and governments working together to develop environmentally friendly, competitive family farm based livestock production systems.

Finally, our public research institutions must invest in the type of research and education that makes our family farms and ranches competitive. Focusing on basic research that primarily helps industry develop new products to sell to farmers won't do the job. Industry will quickly develop the resulting products for the Brazilian mega farms.

To enhance our competitive advantage we need: 1) research that develops basic knowledge that American farmers can use in managing production in our ecosystems, 2) production systems that rely on skilled and motivated management in the field and in the barn, and 3) education systems that build the management skills of working farmers.

We will not crush our Brazilian competitors. But we can take some common sense steps that, together with enlightened trade policy, would enable our family farms and ranches to thrive in an international economy.

Reprinted by permission from Chuck Hassebrook at Center of Rural Affairs.

Photo Request...

Do you have an Agricultural Horizon photo that you would like us to feature in the newsletter? If so, please send electronic jpg format to Cindy Rynes at rynesc@coopext.cahe.wsu.edu
 Or a hard copy to:
WSU Cooperative Extension
PO Box 399
Davenport, WA 99122
Attn: Ag Horizons photo
 (If you'd like your photo returned, please include a self-addressed, stamped envelope.)

December 01—January 02

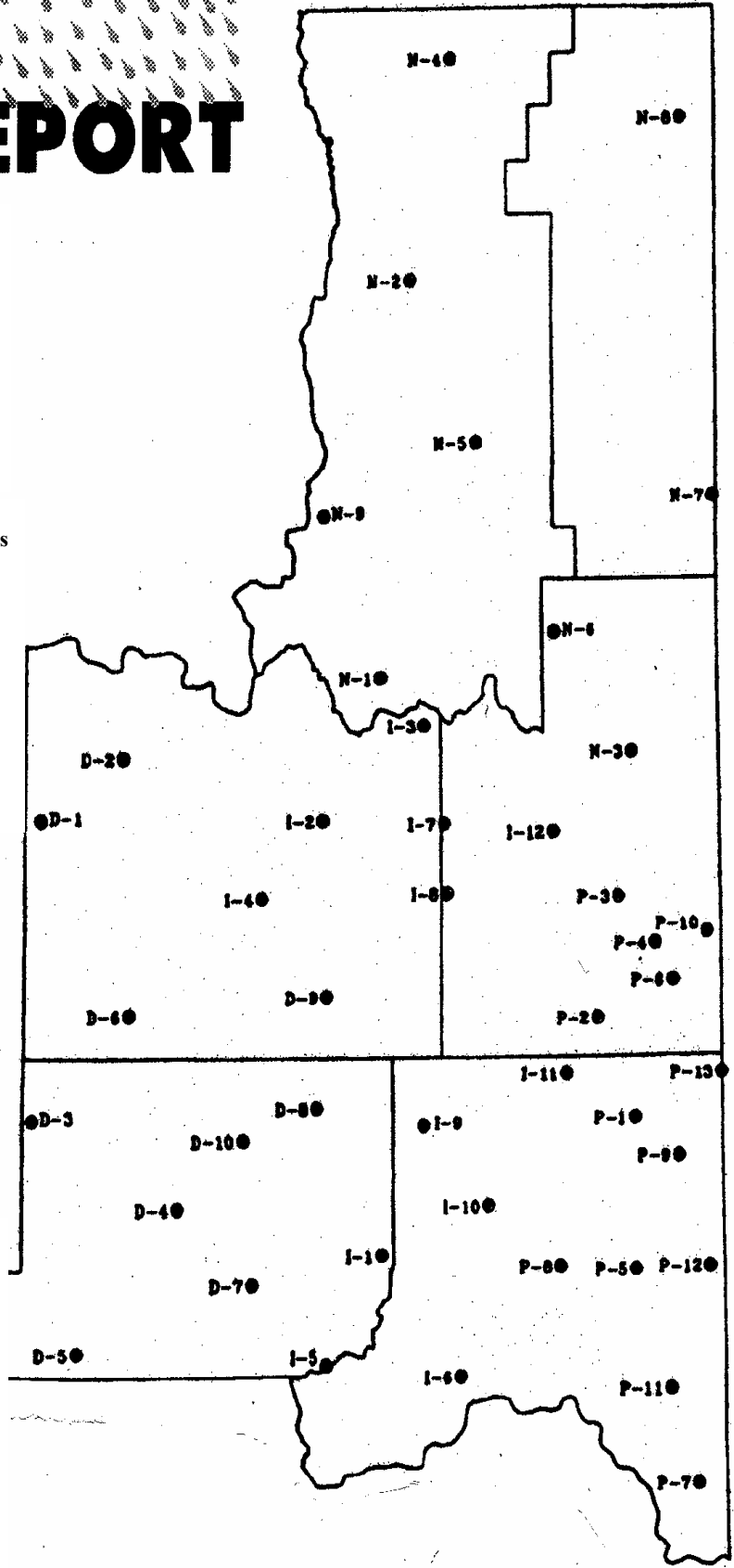


Northeast Region		Precip Inches		
Key	Location	Curyr	Lstyr	10yrs
N-1	Wellpinit (BIA)	NA	NA	NA
N-2	Colville (USFS)	9.86	5.62	9.52
N-3	Peone Prairie (Scott)	7.35	5.70	10.38
N-4	Northport (LeCaire)	9.29	5.49	9.61
N-5	Chewelah (City)	NA	NA	NA
N-6	Deer Park (Gibson)	19.57	8.16	13.55
N-7	Newport (USFS)	18.32	8.53	12.83
N-8	Sullivan Lake (USFS)	14.18	7.38	13.25
N-9	Hunters (Overmeyer)	NA	NA	NA
Average(N2-N8)		13.10	6.81	11.52

Dry Region		Precip Inches		
Key	Location	Curyr	Lstyr	10yrs
D-1	Almira (Kiner)	6.04	4.04	6.98
D-2	Wilbur (Lincoln Mutual)	7.27	3.12	7.21
D-3	Schrag-Moody (Schell)	6.02	3.99	5.73
D-4	Lind (Dryland Exp. St.)	5.74	3.84	5.33
D-5	Hatton (Hudlow)	6.59	3.58	5.55
D-6	Odessa (Miese)	6.76	3.82	6.21
D-7	Rattlesnake Flats (Allen)	NR	4.12	7.16
D-8	Carico Hills (Goodwater)	NR	4.81	7.26
D-9	Sprague (Bourne)	4.06	3.48	7.35
D-10	Ritzville (Galbreath)	NR	2.82	4.46
Average		6.07	3.76	6.32

Intermediate Region		Precip Inches		
Key	Location	Curyr	Lstyr	10yrs
I-1	Benge (Honn)	7.72	6.00	6.36
I-2	Davenport (McGregor)	7.03	5.78	7.47
I-3	Long Lake (Wollweber)	7.90	5.07	8.43
I-4	Rocklyne (Mielke)	6.91	5.10	8.32
I-5	Hooper (Rumiser)	6.04	5.33	8.54
I-6	Dusty (Moore)	12.61	6.52	8.29
I-7	Reardan (Carstens)	NR	2.91	8.54
I-8	Tucker Prairie (Valley)	15.53	5.15	9.36
I-9	Lamont (Morton)	8.00	3.89	11.13
I-10	Lancaster (Smith)	9.14	5.00	9.42
I-11	Pine City (Dowling)	9.61	5.89	9.53
I-12	Spokane Int. (NWS)	8.63	4.72	8.82
Average		9.01	5.11	8.68

Palouse Region		Precip Inches		
Key	Location	Curyr	Lstyr	10yrs
P-1	Oakesdale (Goldsworthy)	9.87	6.19	9.46
P-2	Plaza (McGregor)	8.87	3.31	9.27
P-3	Hangman Hills (Taylor)	6.91	6.06	9.89
P-4	Mt. Hope (Cornwall)	8.92	5.75	9.34
P-5	Colfax (Bannister)	NA	NA	NA
P-6	Fairfield (Wilbur/Ellis)	9.74	6.17	9.18
P-7	Colton (Druffel)	8.66	7.43	11.43
P-8	Diamond (Klettke)	9.87	6.82	10.57
P-9	Belmont (Peringer)	12.68	8.77	10.93
P-10	Rockford (Wigen)	NR	5.33	11.05
P-11	Pullman (Guettinger)	NR	10.31	12.69
P-12	Palouse (McGregor)	12.26	8.82	13.70
P-13	Tekoa (McGregor)	NR	NR	13.26
Average		9.75	6.81	10.90



Agricultural Horizons is published six times per year by WSU Cooperative Extension. The purpose of this newsletter is to foster an understanding of the agronomic, economic, and social impacts of agriculture and to promote the adoption of practices that sustain the natural resource base for continued use by future generations. For more information or to submit an article for review, contact Martin Palmer, 719 Jefferson, Davenport, WA 99122. For a free electronic version, point your browser to: <http://pnw-ag.wsu.edu/AgHorizons/newsletter/index.html> or for a paid hard copy subscription, call (509) 725-4171.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by Cooperative Extension is implied. It is the responsibility of the user to read and carry out label instructions.

Ed Adams (509)358-7960
 Director of Ag & Natural Resources, Spokane
adamse@wsu.edu

Aaron Esser (509)659-3210
 On-Farm Testing, Ritzville
aarons@wsu.edu

John Fouts (509)477-2176
 Small Farms, Livestock and Forage, Spokane
fouts@wsu.edu

Dennis Pittmann, (509)397-4636
 Agriculture Research, Colfax
pittmann@wsu.edu

Jeannie Kubas (509) 725-4171
 Team Assistant, Davenport
kubasj@coopext.cahe.wsu.edu

Jon Newkirk (509) 477-2179
 Western Region Risk Management
 Coordinator, Spokane
jnewkirk@wsu.edu

Martin Palmer (509) 725-8482
 Editor, Davenport
palmer@coopext.cahe.wsu.edu

Tom Platt (509) 725-4171
 Livestock & Range, Davenport
plattom@wsu.edu

Diana Roberts (509) 477-2167
 Agronomy, Spokane
robertsd@wsu.edu

R. Dennis Roe (509) 335-2916
 Conservation Tillage, Pullman
rdroe@coopext.cahe.wsu.edu

Darla Rugel (509) 725-4171
 Ag Research, Davenport
rugel@coopext.cahe.wsu.edu

Bill Schillinger (509) 235-1933
 Agronomy, Lind
schillw@wsu.edu

Dennis T onks (509) 725-4171
 Dryland Crop Systems, Davenport
dtonks@wsu.edu

Roger Veseth (208) 885-6386
 Conservation Tillage, Moscow
rveseth@uidaho.edu

OVERHEARD

by Diana Roberts

