

ANNUAL NEWSLETTER FALL 2012

ARIZONA

Grain Research & Promotion Council



Chairman's Report – 2012

By David Sharp



This report marks the first one since 2007 in which I do not have to discuss the AGRPC's impending task of securing grain growers' funds from government expropriation. That task first involved pursuing legal action against the State of Arizona through

the court system and then advocating for protective legislation.

Last year's AGRPC newsletter (2011) provided details of the unsuccessful legal effort to recover funds swept by the 2008 legislature and the temporary protection of the grain fund secured by legislation that contained a sunset provision for the end of 2012. Now, I can report that the AGRPC's "grain fund," created with retained assessments on Arizona's barley and wheat production sold in commercial channels, has been recognized as a trust fund due to legislation that became effective in the summer of 2012. This language is contained in A.R.S. §3-590 as part of the AGRPC's enabling legislation.

A summary of the legislative activity that resulted in protection of AGRPC funds, as well as those of a number of other ag funds, is presented elsewhere in this newsletter. Attorney Robert Shuler has authored part of this summary. Mr. Shuler was heavily involved in our efforts to gain "trust" recognition.

Gratitude is due & well-deserved

Arizona's grain industry is greatly indebted to several individuals for their unwavering support for protecting AGRPC funds, as well as those of the citrus and iceberg lettuce research groups and a number of ag regulatory programs. In my opinion, we particularly must thank Senator Don Shooter, Representative Russ Jones, and attorney Robert Shuler for their roles in finally achieving some measure of protection of industry funds from legislative misappropriation. Without their dedication, we might still be struggling to achieve the ethical outcome that most everyone agreed was right.

AGRPC sunset hearing

All agencies of the State of Arizona, including the AGRPC, are subject to periodic legislative review according to a process prescribed in A.R.S. Title 41, Chapter 27. This statute provides a system for the

state legislature to evaluate the need to continue the existence of state agencies. The review is conducted by a bi-partisan Committee of Reference (CoR) composed of members of the Senate Natural Resources and Transportation and House Agriculture and Water Committees.

A.R.S. § 41-2954 identifies a number of factors relating to fulfillment of an agency's statutory purpose and regulatory authority. The CoR requires the agency to present written responses to the statutory factors and to appear at a CoR meeting. The CoR then recommends continuation, revision, consolidation, or termination of the agency, leading to legislation which normally formalizes the recommendation. The AGRPC's last such review process was conducted in 2002-2003, when the council's existence was continued through June 30, 2013.

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Re-cap of AGRPC legal issues and legislative efforts since 2008

The Arizona State Legislature swept \$80,000 of AGRPC assessment reserves in April 2008; AGRPC joined with industry and farm groups in a lawsuit seeking return of the funds and prevention of future sweeps; Maricopa County Superior Court issued a 2009 opinion that the AGRPC funds were collected for specific purposes and should not be used for any legislative purpose, even if held in a state bank account; State of Arizona appealed to the State Court of Appeals, which overturned the Superior Court finding in November 2010; Arizona Supreme Court declined to review the Appeals Court decision, thus permanently ending the AGRPC's effort to regain its swept funds; Ag industry efforts subsequently focused on efforts to protect agricultural funds through legislative action.

Coordinated efforts involving industry and legislators lead to trust designation for AGRPC and other ag funds

By Robert Shuler, The Shuler Law Firm, PLC – Scottsdale, Arizona

In April 2011, the Arizona legislature passed HB 2312, entitled AGRICULTURE TRUST FUNDS, which was sponsored by Representative Russ Jones of Yuma. After Governor Jan Brewer signed the bill, the new law designated AGRPC funds, as well as certain other funds held by the Department of Agriculture, as "trust funds," assuring that the use of the designated funds will be restricted to the purposes for which the funds were established.

However, the legislature dictated that this trust designation would no longer be effective as of December 31, 2012. The limitation on the trust designation was a result of the legislature's desire to establish criteria for determining whether any fund should be placed in trust and to determine if the agricultural funds covered by HB 2312 would meet established criteria.

Representatives of a number of agriculture funds that were temporarily designated as trust monies in H.B. 2312 met with Yuma-area legislators in November 2011 to discuss strategies for defining criteria that might define any fund as a trust fund. As a result, in January 2012, Representative Jones introduced H.B. 2340: LEGISLATIVE CONSIDERATION; TRUST FUNDS; REQUIREMENTS and Senator Don Shooter of Yuma introduced S.B. 1233: AGRICULTURE TRUST FUNDS. H.B. 2340 established trust fund criteria and SB 1233 permanently designated the agricultural funds as trust funds.

Trust funds, continued on page 8

A Message to Arizona's Grain Growers

The Arizona Grain Research and Promotion Council was created in 1986 by the Arizona legislature as a producer-funded and producer-directed program to assist in developing the state's grain industry to be more productive and profitable. The council is subject to the State's sunset review re-authorization process in 2012 and 2013. It is expected that the 2013 Arizona legislature will adopt legislation extending the council's existence until 2023.

Programs and projects in which the council may engage include:

1. Cooperation in state, regional, national or international activities with public or private organizations or individuals to assist in developing and expanding markets and reducing the cost of marketing grain and grain products.

2. Participation in research projects and programs to assist in reducing fresh water consumption, developing new grain varieties, improving production and handling methods and in the research and design of new or improved harvesting or handling equipment.

3. Any program or project that the council determines appropriate to provide education, publicity or other assistance to facilitate further development of the Arizona grain industry.

The council consists of seven members appointed by the governor for three-year terms. Members must be residents and producers in the state and they serve without compensation. Producers seeking consideration for appointment to the council may contact the Arizona Department of Agriculture's council administrator (602-542-3262.)

The council has established a check-off fee of \$.02/cwt (\$.40/ton) on the barley and wheat of all classes that is produced in Arizona and sold "...for use as food, feed or seed or produced for any industrial or commercial use." Thus, all grain of these kinds is subject to the assessment when it is first sold to a buyer or "first purchaser."

Check-off fees are collected by the "first purchaser" and remitted to the council, in care of the Arizona Department of Agriculture. While producers bear primary responsibility for paying the fee, this liability is discharged if the fee is collected by the first purchaser.

Producers may request a refund within 60 days of paying the fee by submitting the appropriate refund request form that can be obtained from the council.

The council's quarterly meetings are open to the public. Meeting dates and agendas can be obtained from the ADA council administrator's office.

Producers of grain in Arizona are urged to contact any council member with comments or ideas pertaining to the council's mission or activities.

AGRPC'S FY 2011 Financial Statement and FY 2012 Budget

	FY 2012 Actual	FY 2013 Budget (1)
Beginning fund balance	\$24,383	\$25,756
Income items:		
Assessments	\$155,722	\$166,800
Investment income	681	1,000
Less refunds to producers	(9,139)	(12,240)
Net income	\$147,264	\$155,560
Total operating fund balance	\$171,647	\$181,316
Expenses		
Executive Director	\$17,000	\$18,000
ADA Administration	3,000	6,000
U.S. Wheat Associates	28,700	29,500
Travel & meeting	10,989	12,000
Desert Durum quality survey	7,838	9,000
Trade teams	0	2,000
Annual newsletter	1,930	2,000
Promotion & advertising	14,094	15,000
Research projects	62,340	45,000
Attorney's fees	0	0
Miscellaneous	0	1,000
Total expenses	\$145,891	\$139,500
Surplus or (Deficit) on yearly income	\$1,373	\$16,060
Ending fund balance	\$25,756	\$41,816

(1) Effective April 10, 2012

AGRPC Members

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This annual report and newsletter of the Arizona Grain Research and Promotion Council was published by the AGRPC's contracted Executive Director, Allan B. Simons. Phone: 520-429-1221. E-mail: absimons@cox.net. Edited by Allan B. Simons.

Contact the Arizona Department of Agriculture to obtain remittance and refund forms. 1688 W. Adams, Phoenix, AZ 85007. Phone: 602-542-3262. Fax: 602-364-0830. Lisa James, Council, Board, and Commission Administrator. E-mail: ljames@azda.gov.

Chairman's Report, continued from page 1

AGRPC staff and members prepared responses to the statutory factors and submitted them to the CoR in August, 2012. We are expecting to make our case for the continuation of the AGRPC at a CoR hearing on December 5 by emphasizing the council's stewardship of growers' funds in supporting grain research and promotion. Our annual newsletters have covered most of the points we will make. The hearing will be open to the public.

2012 wheat crop – was it short on acres & yields?

There seems to be consensus in the grain industry that the state's 2012 wheat crop (mostly durum) came up short of the USDA's October 1 estimate of 315,600 tons produced on 112,000 acres harvested. Tonnage of assessed wheat as submitted to date by first buyers tends to back up the perception of considerably less production than reported – perhaps 10% less. Yields were probably more variable than in many seasons, but averaged a bit less than usual, according to both grower experience and USDA's survey yields.

Barley production was probably close to USDA's October 1 estimate of 118,440 tons from 47,000 acres harvested. The 2012 barley crop was down about 32% from 2011, according to USDA, due to 26% fewer acres and lower average yields by 900 lbs/acre.

A projected shortfall in expected combined assessments from the 2012 crop, which were based on USDA projections published in March, can be handled by using carryover funds and by limiting expenditures of uncommitted funds in several budget categories. However, the council will strive to retain funding for its most critical programs, especially grain research.

Once again, we see the negative impact of losing significant financial reserves to the state's 2008 sweep, resulting in the perception that reserves had to be minimized to shield them from future sweeps. Let us hope that the grain fund's recently-acquired trust status will allow us to rebuild a meaningful reserve as circumstances permit.

Moroccan milling company visit

One of the benefits of AGRPC's membership in U.S. Wheat Associates is the occasional opportunity to host delegations of potential export customers who arrive in the desert wanting to know more about Desert Durum®. I had the pleasure of meeting with the most recent such group in early October when representatives of a prominent Moroccan milling firm spent several days consulting with Arizona and California durum handlers about establishing business ties. Details of the group's time in Arizona and motives for visiting us are presented elsewhere in this newsletter. I'm told that this was about the 25th foreign trade team to visit Arizona in the past 25 years.

Outlook for 2013

My sources of information about the 2013 grain crop are painting a rather dull picture for durum at this writing in mid-November. They say that the mood of both domestic and foreign buyers is "relaxed" in terms of concerns about finding adequate durum supplies before the desert's 2013 crop is available. Buyers see adequate supplies until next summer so are not anxious to lock in significant purchases now.

Apparently, the European durum crop was decent in quantity and quality. The big change in the North American market was the August 2012 demise of the Canadian Wheat Board as a single desk seller – a development that has resulted in Canadian durum being priced more competitively. I gather that the contracts currently being offered to produce Desert Durum® are not particularly exciting, especially to Central Arizona growers. 2013 will probably see a significant drop in the state's durum acres from 2012. On the other hand, strong corn prices for delivery to Arizona next summer continue to make barley a decent choice for Central Arizona. Lower production costs and quality concerns, compared to durum, translate to less risk, so the state may hold steady in barley production.

Grain research continues to be a priority

I urge you to look over the short descriptions in this newsletter of research proposals that AGRPC has funded for 2013, as well as the brief reports of projects completed during the past year. About one-

third of the council's annual budget is devoted to funding research and information efforts that support barley and wheat production in the state. Complete reports are eventually published at the following Department of Agriculture web site: www.azda.gov/CDP/grain.htm and in the U of A's Forage and Grain titles at www.cals.arizona.edu/pubs/.

The council and the UA scientists who do most of the work are very receptive to your ideas about specific production issues that you might want examined. Please let us know.

We grain growers have long enjoyed the results of the three private small grain breeding programs that have been active in Arizona for the past 25 years. The many barley and durum varieties these programs have offered us provide competitive yields and high quality potential. Unlike in many other states, our assessment funds have not had to be used for variety improvement. I urge you to read the information, presented in this issue, about the careers of the breeders who have played such a large role in our industry's success.

Arizona's SIX Cs.....?

The recent surfacing of an *Arizona Republic* story from 1976 leads me to suggest that another "C" could be added to the traditional "climate, copper, cattle, cotton, and citrus" aspects that are cited to describe Arizona's attributes. But, how many of us recall that Arizona grew about 440,000 acres of wheat and 5,000 acres of barley in 1976 – about 40% of the state's crop acreage that year, exceeding cotton acres?

In fact, annual barley and wheat acres combined often occupied one-quarter or more of the state's crop acres during the 1970s, according to USDA figures. Of course, 1976 was the historical high acreage total, but barley and wheat have continued to make up significant portions of our crop acreage over the 36 crop-years since then. The proportion has varied from a low of about 12% to as high as 25%, with about 15% as an average. To me, that suggests that "cereals" should be the sixth "C" in Arizona's lineup. But, cereals seem to be the Rodney Dangerfield of Arizona agriculture – they just can't get no respect.

Gratitude galore

Now comes the most rewarding section of my report – recognition of the institutions and individuals who contribute to the AGRPC's accomplishments on a continuing basis. I am extremely grateful to them for their support of the council's fine record of advancing our grain industry through research, promotion, and industry advocacy. While it has been my honor to serve as chairman and to receive the accompanying recognition, the six other members of the council have been outstanding representatives of their constituents. It is through their efforts, goals, and commitments that we have been able to do our part in protecting and supporting our grain industry.

Executive Director Al Simons is always willing to attend crucial meetings, monitor e-mails, host trade teams, organize crop quality surveys, work on the budget, or publish annual newsletters. We could not be as successful as we are if it were not for Al's contributions.

While AGRPC pays the Department of Agriculture for the essential services that we require, the council is most grateful for the way in which the Department provides guidance and assistance. Specifically, my gratitude goes to Lisa James of the Department for the patient manner in which she represents us, as well as for the detailed work that she does behind the scenes.

Council member Michael Edgar has devoted cumulative months of service over the past 10 years in representing Arizona and the AGRPC as our U.S. Wheat Associates board member and as a USW officer for four years. He has been an eloquent spokesman for our industry.

Finally, I thank Arizona Grain, Inc., for lending the services of attorney Robert Shuler to the council and Robert, himself, for providing guidance and wisdom that were invaluable resources as we navigated the halls of the legislature in pursuit of our goal of protecting growers' funds over the past several years. I often had the desire to achieve the goal but lacked the appropriate strategic knowledge to get there. Robert really pitched in and helped us find the way to success. ▼

The plant breeders who spearheaded grain variety improvement in AZ

Three plant breeders and their supporters played featured roles in transforming Arizona's grain industry to the present

Barley and wheat have been significant fixtures of Arizona's cropping history during the century that has passed since statehood. At times, the two crops combined have rivaled cotton for acres and actually exceeded cotton in their 1976 record high of 443,000 acres harvested, which was about 40% of the state's crop area that year. But, who knew?

Over the 25 years of 1986 – 2011, wheat and barley occupied an average of about 16% of the state's annual crop area, ranging from a low of 12% to a high of 24%, as derived from USDA records. Nevertheless, one would be hard-pressed to find a grower who identifies as a "grain farmer." So, what's going on here and where does grain farming (wheat and barley in particular) fit in Arizona's agricultural heritage?

The character of Arizona's barley and wheat crops in the mid-1980s was significantly different than what we see in 2012 and it has evolved greatly over the past 25 years or so. Barley was a relatively insignificant crop at the beginning of this period, as high-yielding durum and red wheat varieties originating from CIMMYT in Mexico provided locally-grown livestock feed and milling wheat for low-end food uses. Cheap mid-western corn and sorghum were often more economical alternatives for feeders than paying the prices needed to buy barley acres from Arizona growers. Considerable quantities of red wheat were grown for exporting certified seed to the Middle East. Most of Arizona's durum wheat crop had a negative reputation in the pasta industry due to its poor color and low protein quality.

But, a convergence of unpredictable, even serendipitous, developments contributed to transforming Arizona's small grain industry into its current role as a significant producer of feed barley and high quality durum wheat. While all segments of the grain industry played important roles in the transformation, the contributions of three individuals deserve recognition for their long-term roles in this success story. The following profiles are brief observances of their careers.

Albert E. Carleton

Western Plant Breeders and Arizona Plant Breeders

Al Carleton is a native of southeastern New Mexico. He earned a B.S. in agronomy from New Mexico State University in 1963 and M.S. and Ph.D. degrees in plant breeding from Oregon State University in 1965 and 1966, respectively. His first professional job was breeding and teaching forage crops at Montana State University. Carleton quit academia in 1972 and founded a company named Montana Seeds, producing forage seeds and breeding barley varieties.

Montana Seeds and Valley Seed Co. of Phoenix, owned by the late Bill Corpstein, were both collaborating with a major grain company in barley variety improvement and using seasonal shuttle breeding between Montana and Arizona to speed up the variety development process. Carleton and Corpstein left the collaborative deal in 1974 to found Western Plant Breeders (WPB), selling an interest in the company to Southwest Marketing of El Centro, CA in order to acquire operating capital.

It was in El Centro where the event that led to the eventual development of what we know to be the identity-preserved southwestern Desert Durum® industry took place in 1976. Carleton made a composite cross that included several high-quality northern durum varieties and two high-yielding varieties adapted to the southwestern desert. He noticed that one of the progeny lines from that cross possessed exceptional dark yellow color that was unlike any before seen in the desert. After continued selection for color in subsequent generations, Carleton sent a sample of pasta made from the line to the USDA grain quality laboratory in Fargo, North Dakota, where testing revealed such a strong yellow color that the lab accused



Three breeders in 2005. From left – Kim Shantz, Al Carleton, and Rex Thompson. Each devoted his career to improving barley and wheat varieties adapted to Arizona.

WPB of doctoring the sample with eggs. When similar results were obtained from the line's whole grain milled into semolina by the lab itself, the intrinsic quality of the variety eventually named *WestBred 881* was confirmed.

However, getting the appropriate durum customers to notice and demand the quality that *WB 881* delivered took some time and persistence on the part of WPB and its principals. Bill Corpstein first sent samples to a potential Italian customer who loved the product it made. Container shipments followed in the mid-1980s until the customer asked for a ship's hold and, eventually, a full cargo with proof that the grain was all *WestBred 881*. Here is where the concept of "identity preservation" was implemented, with varietal verification provided initially by use of certified seed and grower affidavits. Eventually, the customer began using lab methods to verify varietal purity, a process that continues to the present. Today, all of Arizona's major durum handlers offer identity preservation to customers who prefer to buy a specific variety. *WB 881* pioneered the transition of Arizona's durum industry to both quality and customer-based grain handling.

WPB was acquired by a French seed company in 1984 and Carleton left the company in 1988. He and Corpstein then founded Arizona Plant Breeders (APB) in 1989 in partnership with Arizona Grain, Inc. Headquarters were located in Arizona City, where Carleton continued breeding barley, common wheat, and durum wheat.

The first successful durum variety released by APB was *Kronos*, which became the dominant durum variety in Arizona and California for a number of years and has been widely produced by licensees in several foreign countries. Other durum varieties developed by APB that have gained some success in the pasta markets or are up-and-coming are *Ocotillo*, *Matt*, *Minos*, *Sky*, *Westmore*, and recently, *Westmore HP* and *Helios*. Barley varieties developed and released for production in Arizona have been *Mucho*, *Baretta*, and *Primo*.

Arizona Grain, Inc. acquired full ownership of APB in 2010. Al Carleton was retained as a consultant and has continued to lend his experience to the company's barley and wheat improvement efforts. ✓

Kim C. Shantz

Western Plant Breeders and WestBred, LLC

Kim Shantz arrived in Arizona in 1974 after growing up on a dairy farm in northern Michigan and earning a B.S. in Crop Science from Michigan State University. He initially was hired as a research technician at the University of Arizona's Mesa Experiment Station, where his first boss was the late Rex Thompson, then an agronomist and crops breeder at the station.

In 1977, Shantz was hired as a technician to manage the Arizona end of the seasonal Montana-Arizona shuttle cereal breeding program operated by Western Plant Breeders (WPB). However, the owners of WPB soon promoted him to the position of plant breeder in recognition of his plant breeding instincts. Shantz operated breeding nurseries and yield trials in both Arizona and the Imperial Valley of California. He recalls with some irony that the durum variety *WestBred 881*, which eventually became the prototype high quality desert durum, barely avoided being discarded for non-competitive yield after the company's 1980 yield trial in the Imperial Valley.

Shantz continued his efforts to develop agronomically-acceptable common wheat and durum varieties for the Arizona and California deserts through the 1980s when WPB was owned by a French company. His focus expanded to include California's Central Valley environment in the 1990s and 2000s after Barkley Seed, Inc. of Yuma acquired WPB. WPB relocated its Arizona headquarters from Chandler to Yuma after the Karnal bunt (KB) quarantine was implemented in central Arizona by the USDA in 1996. KB has never been observed in Yuma County, so the region has never been included in the quarantine area.

Shantz considers that his most significant contribution to Arizona's grain industry has been incorporation of the extra-strong gluten trait in high-yielding and agronomically desirable durum varieties that are acceptable to growers. These varieties are seen as capable of producing highly-desirable pasta for the Italian market – perhaps the most discerning of all pasta markets.

A second achievement for which Shantz takes considerable satisfaction is the timely release of some low-cadmium (Cd) durum varieties that have allowed durum grown in the southwestern part of Arizona to meet the European Union's maximum allowable Cd level in wheat grain – currently 200 parts per billion. Durum grain produced in central Arizona does not accumulate Cd to the same extent as grain produced in the Colorado River Valley and the Imperial Valley.

The durum varieties that he bred and/or developed during his career include *WestBred 803*, *WestBred 881*, *WestBred Turbo*, *WestBred Laker*, *Imperial*, *WestBred 883*, *Aruba*, *Cortez*, *Kofa*, *Mohawk*, *Tacna*, *Orita*, *Alamo*, *Alzada*, *Havasu*, *WB-Mohave*, and *WB-Mead*.

Shantz also developed a number of red wheat varieties adapted to California's Central Valley, some of which have gained major usage. A major breeding challenge for that region has been staying ahead of the stripe rust fungus that mutates rapidly, quickly overcoming varietal resistance. The red wheat varieties that Shantz has bred and/or developed include *WestBred 911*, *Baker*, *Express*, *WB-926*, *Brooks*, *Rambo*, *Eldon*, *Snow Crest*, *Dash 12*, *Joaquin*, *Solano*, *WB-936*, *Expresso*, *WB-Rockland*, *WB-Paloma*, *WB-Perla*, *WB-Patron*, *WB-Joaquin Oro*, and *WB-9229*.

Kim Shantz retired from WestBred in 2012 following a 35-year career of improving wheat varieties for Arizona growers. WestBred is now owned by Monsanto Co., which intends to continue its Arizona-based breeding efforts in the foreseeable future. ♡

Rex K. Thompson

University of Arizona, Farmers Marketing Corporation, and World Wide Wheat, LLC

Rex Thompson was a native of northeast Missouri who served in the U.S. Army during World War II before earning a B.S. in Agronomy from the University of Missouri. He farmed and taught agriculture in a Missouri high school before migrating to Arizona. Thompson joined the University of Arizona in 1953 and spent most of his career conducting agronomic and plant breeding research at the U of A's Mesa Experiment Station (since closed). He earned an M.S. in agronomy from the U of A in 1957.

Thompson enjoyed a varied career at the Mesa station. He conducted agronomic research on the culture of alfalfa, cereal grains, and oilseed crops. He is credited by contemporaries and others with discovering and refining successful cultural methods for growing numerous crops under irrigation and intensive management in Arizona's desert environment. He maintained the USDA world collection of wheat, barley, oats, and rye and operated a quarantine center for small grain germplasm introductions. He published over 100 bulletins, scientific papers, and popular articles combined. He was named "Man of the Year" by the Pacific Seedsmen's Association in 1979.

Thompson may be best known for his research involving the use of male sterile-facilitated recurrent selection (MSFRS) populations of barley and wheat in making composite crosses to achieve high frequency of recombination in a breeding program. He was involved in the development and release of numerous crop varieties while at the U of A, including: *Arimar*, *Harlan II*, *Bartel*, *Westbar*, and *Seco* barleys; *Mesa* oats; *Maricopa* wheat; and *Sonora*, *Mesa Sirsa*, *Sonora 70*, *Hayden*, and *Lew* alfalfas. He also developed germplasm sources that provided lines used by Western Plant Breeders in its early cereal breeding efforts.

Following retirement from the U of A in 1987, Thompson took a position as Director of Research at Farmers Marketing Corporation (FMC), which later evolved as World Wide Wheat, LLC (WWW), and relocated to the Phoenix area to continue breeding and development of cereal grains. According to WWW sources and his journals from the 1940s and later, Thompson maintained a firm opinion that cereal breeding programs should be conducted in the environments where the varieties they produced would be utilized by farmers, and that improving grain end-use quality was equally as important as improving yield and other agronomic traits. Consequently, he oversaw the establishment of numerous breeding nurseries in foreign markets on behalf of WWW's business plan. He continued to exploit the MSFRS methodology to maximize breeding productivity in those programs as well as WWW's U.S. domestic varietal improvement efforts.

Durum varieties released by FMC and WWW under Thompson's direction included *Bravadur*, *Command*, *Crown*, *Diavolo Duro*, *Duraking*, *Durex*, *Durostar*, *Platinum*, *Ria*, *Topper*, *Utopia*, and several others denoted by numbers. *Duraking* has long been one of the highest yielding durum varieties adapted to the Arizona desert. Hard red spring common wheat varieties released were *Admire*, *Cavalier*, and *Poco Red*. Hard white spring varieties released included *COI 955W*, *COI 963W*, and *BR 1005W*.

Rex Thompson passed away at the age of 87 on January 23, 2007. He was buried with full military rites in Hannibal, Missouri. His philosophy of cereal breeding is a legacy that is being continued and expanded by WWW. ♡



2012 Small Grain research grant reports

Note: All 2012 research reports were submitted by scientists in the College of Agriculture and Life Sciences (CALS) at the University of Arizona.

Reports 1 and 2 were submitted by Dr. Mike Ottman, Extension Agronomy Specialist, CALS, Tucson.

1) 2012 Small grains variety testing

Barley and wheat varieties were tested in small plots this year in Maricopa, Coolidge, and Yuma as part of the on-going effort to assess commercial varieties and experimental lines in terms of yield potential, relative maturity, quality, and other characteristics. Small plot trials provide an indication of varietal potential against other varieties but cannot replace on-farm comparisons. A summary of commercial varieties' performance across all locations monitored by the U of A in 2012 is posted online at <<http://ag.arizona.edu/pubs/crops/as1265.pdf>>. The complete results for 2012 can be obtained from the AGRPC.

2) 2012 Small Grain Advisory

A *Small Grain Advisory* was developed for 12 locations in Yuma, La Paz, Mohave, Maricopa, Pinal, Pima, and Graham Counties and distributed on a bi-weekly basis on the World Wide Web. The advisories began in January and ended in May. Weather data from AZMET were used to estimate crop growth stage and water use throughout the season. Nine advisories were developed and placed on the web (<http://ag.arizona.edu/forageandgrain/smalladv.html>). This was the tenth year in which the advisory was developed and distributed.

Report 3 was submitted by Dr. Mike Ottman, Extension Agronomy Specialist, CALS, Tucson and Dr. Pedro Andrade-Sanchez, Precision Agriculture Specialist, CALS, Maricopa.

3) Determination of optimal planting configuration for low input and organic barley and wheat production in Arizona

Markets for organic barley and wheat are expanding. Weed control is a major challenge in growing organic small grains. In a study conducted at the Larry Hart Farm near Maricopa, organic barley and durum wheat were grown in conventional 6-inch drill spacing and also in 30-inch row spacing that allowed cultivation to control inter-row weeds. Weed pressure was moderate and the weed biomass was about 1 to 5% of the crop biomass near maturity. The primary weed was Palmer amaranth (pigweed). Durum wheat grain yields were 3,421 lbs/acre on 6-inch spacing and 2,976 lbs/acre on 30-inch spacing. Barley grain yields were 3,921 lbs/acre on 6-inch spacing and 2,530 lbs/acre on 30-inch spacing. These results are similar to those obtained in a 2011 study; both experiments indicated that barley grain yield was reduced more than durum wheat yield in the wider row spacing than in the conventional drill spacing when producing grain organically.

Report 4 was submitted by Dr. Pedro Andrade-Sanchez, Precision Agriculture Specialist, CALS, Maricopa and Dr. Mike Ottman, Extension Agronomy Specialist, CALS, Tucson.

4) Characterization of spatial variation in wheat yield and protein using soil and plant sensors

The goal of this project is to improve understanding of soil fertility effects on grain yield and quality by looking at field-scale fertility patterns. A durum wheat field near Sacaton, AZ was selected for this study in 2012. A survey of soil electrical conductivity (EC) at tillering showed variations in a NW-SE diagonal transect, which guided a smart sampling scheme for in-season soil/plant-stem nitrogen (N) monitoring. Sensor-based canopy spectral and plant height measurements complemented the dataset. Observations were

organized in three field zones, consistent with Low (L), Medium (M) and High (H) EC values.

Sensor readings showed that zone H contained plants with more vigor, also associated with soil/plant N values that averaged 2.4 times higher than in zone L. Yield and grain protein differences ranged from 5,265 to 8,091 lb/acre and 12.96 to 14.33% for zones L and H, respectively. EC values were highly associated with soil textural changes in the field. EC surveys and yield monitoring data can be used to delineate management zones to change the in-field distribution of N through variable-rate application technology that is already available commercially. Sensor-based management of N fertilizer will optimize durum wheat yield and quality.

The following report was submitted by Dr. Guangyao (Sam) Wang, Assistant Cropping System Specialist, CALS, Maricopa.

5) Managing N application for grain protein content in durum wheat using image processing and canopy reflectance

Simple and rapid methods to measure crop nitrogen (N) status are needed to make on-site N application decisions for increased crop yield and quality. Experiments with six durum wheat cultivars and six N fertilizer rates were conducted at Maricopa Ag Center in the 2010-2011 and 2011-2012 growing seasons to test the potentials of remote sensing, crop modeling, and SPAD meter readings in predicting crop yield and grain protein. Both remote sensing and crop modeling can be effective tools to manage durum wheat N status and predict durum wheat yield and grain protein. While chlorophyll (SPAD) meters are widely used for cereal crop N management, significant variations in measurements of the first fully-expanded leaves between growing seasons, locations, and crop cultivars make it less effective. The effectiveness of SPAD meter readings of the differences between the first and second fully expanded leaves can be significantly improved by determining a normalized SPAD index using well-fertilized strips as references. We found that durum wheat crops reach sufficient N status when the difference in SPAD readings between the second and first fully expanded leaves is higher than 2.75. Dr. Michael Ottman and Dr. Kelly Thorpe (USDA-ARS, Maricopa) were cooperators.

6) Reducing cadmium accumulation in durum wheat grown in Arizona

NOTE: The final results of this experiment were not available at the time of printing this newsletter.

Research project 7 was submitted by Dr. Charles Sanchez, CALS, Maricopa.

7) Continued evaluation of N-stabilizing products and cultivar on protein and yields of Desert Durum® wheat

This experiment addresses the possibility that portions of the nitrogen (N) applied to durum wheat crops are lost through leaching to below the crop root zone or by nitrification. A number of N-stabilizing products were evaluated in the 2010-2011 crop with minimal differences in yield noted. However, grain protein content differences were found, so the most promising N-stabilizing products were utilized in trials at both Yuma and Maricopa during the 2011-2012 growing season to follow up on the 2010-2012 results.

The products evaluated included N uptake enhancers and soil biological products. More economical rates of the various products were applied in 2011-2012 than in 2010-2011. There was a positive response to N fertilization in durum grain yield and grain protein levels in the past year, but none of the products evaluated produced increased N-use efficiency under the application rates used. Perhaps future studies could compare the biological products at rates higher than those used in 2011-2012 but lower than the non-economical rates used in 2010-2011 when increased N-use efficiency was noted.

Research project 8 was submitted by Ms. Shawna Loper, Assistant Area Agricultural Agent, CALS, Casa Grande.

8) Effects of bed vs. flat-planting systems on grain yield, nitrogen content, water use, and production in durum wheat and barley

This project compared different production systems for durum wheat and barley, with the objective of identifying potential economic savings through potentially reduced crop inputs and improved production efficiency. The project compared conventional planting on 'flat' fields vs. planting on 40-inch beds. AZSCHED was used to schedule irrigation. Gated irrigation hose was used to irrigate plots and the amount of water was monitored accurately with a water meter. A neutron probe moisture meter measured actual moisture content before and after irrigations. Protein content, biomass weight, stem nitrogen content, and grain yield were determined.

No significant differences between the planting systems were observed for protein content, stem nitrate levels, or test weights. However, durum wheat grown on the flat produced 4,700 lbs/a vs. 4,149 lbs/a grown on beds. Barley grown on the flat yielded 4,763 lbs/a compared to 4,384 lbs/a on beds. Water use and nitrogen use efficiency were similar in the two planting systems. Based on the current results, considerations for future work could include variable bed widths and the effect of skip-planting in the furrows. Narrower beds could improve water use efficiency and not planting in the furrows would allow easy access which would enable post-emergence N band application. Cooperating scientists in this project were Dr. Ed Martin, CALS Professor of Soils, Dr. Pedro Andrade-Sanchez, and Dr. Michael Ottman.

The following report submitted by Dr. Guangyao (Sam) Wang, Assistant Cropping System Specialist, CALS, Maricopa, summarizes results from a research grant that was originally awarded for the 2011 grain season and completed in 2012.

9) Tillage and N management to maximize profitability on wheat following cotton

Many growers in Arizona plant a durum wheat crop on beds following cotton. Some growers drill the wheat crop directly into shredded cotton residue (no-till). Some use a "Pegasus" or "Sundance" system that combines cutting stalks and listing beds in one operation to bury most residues (conservation tillage). Others use separate operations of shredding cotton stalks, followed by disking and then listing the beds for wheat planting (conventional tillage).

An experiment conducted at the Maricopa Ag Center in 2011-2012 compared the three durum wheat production systems following a cotton crop and identified the durum crop's nitrogen (N) requirements. Cotton lint yield was about 4 bales/ac and the crop was not fertilized after peak bloom. Durum grain yield in the conventional tillage treatment was 6% and 2% higher, respectively, compared to no-till and conservation tillage, but was not high enough to cover tillage costs. With the same total amount of N fertilizer applied in all plots, it is recommended to apply 90 lb N/acre in conventional and conservation tillage systems and 50 lb N/acre on no-till fields before the jointing stage to keep the crop free of N deficiency.



CALS scientists who received AGRPC research grants for FY 2012 were (L-R): Sam Wang, Pedro Andrade-Sanchez, Mike Ottman, and Shawna Loper. Not shown - Charles Sanchez.

Research projects funded for 2012-2013

The research proposals that the AGRPC has funded in the current fiscal year were submitted by scientists at the University of Arizona College of Agriculture and Life Science. Researchers are:

- Dr. Pedro Andrade-Sanchez, Assistant Specialist, Precision Agriculture, Maricopa
- Dr. Michael Ottman, Extension Agronomy Specialist, Tucson

Research projects 1 and 2 were submitted by Dr. Michael Ottman.

1) Small grains variety testing (\$6,000)

Small grains varieties will be tested in small plots by the University of Arizona and by cooperating Arizona-based cereal breeding firms. Tests will include 16 barley varieties, 24 durum varieties, and 8 common wheat varieties. Each cooperator will manage a standardized test containing all varieties and will supply field data to the U of A, which will be responsible for acquiring grain quality testing and for summarizing and reporting all field and laboratory results.

2) Small Grain Advisory (\$2,000)

The *Small Grain Advisory* provides growers with estimates of crop growth stage and water use as determined by weather and local climate. The advisory will be published bi-weekly on the World-Wide Web from early January 2013 through late May. It will use AZMET data to estimate crop growth stages and water use for barley and wheat and will contain projections for those parameters for the following two weeks. Advisories will be prepared for the following locations: Bonita, Buckeye, Coolidge, Harquahala, Marana, Maricopa, Mohave, Paloma, Parker, Queen Creek, Roll, Safford, and Yuma Valley.

Research project 3 was submitted by Dr. Pedro Andrade-Sanchez and Dr. Michael Ottman.

3) Determination of optimal planting configuration of low-input and organic barley and wheat production in Arizona (\$7,844)

The market for organic wheat and barley is projected to increase by 20% in Arizona over the next five years according to knowledgeable sources. Price premiums paid to growers for producing organic grain may range from 50% to 100% above conventionally-grown grains. Weed control is one of the biggest challenges in producing organic grains. Barley and wheat usually compete well with weeds in conventional drill-spacing in organic fields but this planting pattern offers virtually no back-up weed control measures. Planting in cultivable rows usually results in reduced grain production but offers opportunity for significant weed control that may partially compensate for reduced plant population and, therefore, yield. Previous research funded by the AGRPC has produced consistent results at 30-inch spacing. The 2013 project will compare grain yield and production costs (seed and water) for barley and durum grain planted in 20-inch cultivable rows. This third-year project will be conducted in field-scale strips on the farm of AGRPC member Larry Hart.

Research projects, continued on page 8

Trust funds, continued from page 1

AGRPC Chairman David Sharp, council member Eric Wilkey, and Executive Director Al Simons traveled to Phoenix multiple times to meet with legislators and to testify before committees in both the House and Senate regarding the importance of the legislation to the industry. Both bills passed the House and Senate with no negative votes. Governor Brewer signed both bills in April and they are now in effect.

AGRPC funds are now permanently designated as "trust funds." In addition, the laws affirm that the use of the designated funds is restricted to the purpose for which the funds were established and the requirement that unencumbered year-end balances revert to the state's General Fund was deleted.

The efforts expended over the last several years by all involved have resulted in securing AGRPC funds for the future. Special recognition is due Representative Russ Jones and Senator Don Shooter for their strong support of our objectives.

While AGRPC funds are now secure, the AGRPC is headed back to the legislature during the upcoming session. Like all other state-created agencies, the AGRPC is scheduled for its own sunset review. The purpose of the legislative sunset review process is evaluating the need to continue the existence of state agencies.

Chairman Sharp is scheduled to testify before a legislative Committee of Reference regarding the purpose, objectives, past efforts, and future plans of the council. It is expected that the committee will recommend that legislation be introduced to extending the AGRPC's authorization for up to 10 years. The legislation will be introduced in January 2013 and it must be passed by the legislature and signed by the Governor.

In a very short span of time, the AGRPC has been involved in the successful passage and implementation of three pieces of legislation critical to the state's grain industry. A successful result is expected with the sunset review legislation. ✓



Desert Durum Production and Export Volumes Marketing Years 2011 and 2012 (ending May 31)

The following figures were derived from reports of the USDA/NASS, USDA/GIPSA, and the California Department of Agriculture

Production	2010/2011	2011/2012
<i>(Metric tons)</i>		
Arizona	217,155	268,900
California*	263,500	280,000**
Total	480,655	470,155
*Imperial Valley only		
** Estimate		
Export destinations		
Italy	143,605	114,100
Nigeria	95,358	51,955
Cuba	5,330	-----
Total	244,293	166,055

Research projects, continued from page 7

Research project 4 was submitted by Dr. Michael Ottman.

4) Effect of planting date on wheat yield in Yuma (\$9,000)

About 50% of Arizona's annual wheat acreage is located in Yuma and La Paz Counties. The effects of planting dates on wheat grown in these areas have not been investigated since the 1970s. Results from that period must be considered obsolete because the genetic makeup of varieties grown in the state has changed significantly since then, as have cultural practices, including irrigation and fertilizer management. Current planting date practices have stretched the planting window into March from the mid-December to mid-January window that was found to be optimum in the 1970s research. The objective of this study will be to measure the heading date, maturity date, plant height, lodging percentage, yield, test weight, and grain protein responses of common wheat (*Yecora Rojo*) and durum wheat (five varieties) planted over six dates from November 1 through April 1. The study will be conducted at the Yuma Valley Agricultural Center.

Research project 5 was submitted by Dr. Pedro Andrade-Sanchez and Dr. Michael Ottman.

5) Sensor-based management of nitrogen on irrigated durum wheat in Arizona (\$10,476)

A significant quantity of nitrogen (N) fertilizer is an essential component of producing high yields of durum wheat with adequate protein in Arizona soils. However, wheat exhibits rather low N-use efficiency, particularly where irrigation can leach the nutrient below root level. Nitrogen fertilizer is also increasingly expensive. Any technology or practice that will reliably determine crop needs for N at specific growth stages and across variable soils will likely increase N-use efficiency and, therefore, profitability of crop production. This project expects to build on previous evidence obtained with AGRPC funding to further investigate the use of variable-rate N applications with automatic rate-controllers in-field according to crop needs as determined by spectral analysis of crop N status. ✓

2012 Arizona Karnal bunt survey results

Data released by the USDA in Phoenix on June 28 revealed that just two of the 411 wheat fields located in Arizona's KB quarantine areas in 2012 tested positive for Karnal bunt (KB). Wheat was planted on 17,869 acres within the quarantined area this past season when the quarantine area totaled about 223,000 acres in Maricopa and Pinal Counties.

The KB quarantine was implemented in 1996 after numerous Arizona wheat fields were determined to harbor the fungus and bunted kernels were observed in many samples. The pathogen has been recognized as a federal quarantine pest since about 1983.

KB quarantine regulations now enforced by APHIS-PPQ require that wheat fields located within the quarantined areas be sampled and examined for bunted kernels before the field can be harvested. Grain from fields in which bunted kernels are found must be treated and used as animal feed. In 2012, the positive sample from a 33-acre field yielded one (1) bunted kernel while the sample from a 37-acre field yielded three (3) bunted kernels. A sample consists of four pounds of grain containing approximately 35,000 kernels.

Fields found to be KB-positive are designated as regulated fields and all other fields and land located within a three-mile radius fall into the KB quarantine area if they are not already in it. One of the 2012 positive fields was located on the periphery of the quarantine area, resulting in an increase to 228,229 regulated acres. Individual regulated fields can achieve deregulation according to a protocol that involves tillage and/or negative KB sampling of wheat crops for a total of five years. Deregulation of a field may eliminate surrounding fields and land from quarantine status, depending on the proximity of nearby regulated fields. No fields qualified for deregulation so no areas were removed from the quarantine area after the 2012 season. ✓

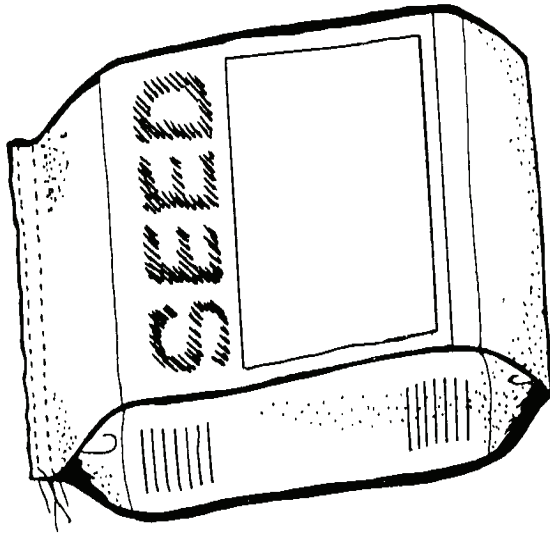
Wheat and Barley

Varieties

for

Arizona

2012



DURUM	BARLEY
Crown is high-yielding, tall with good lodging resistance, late, and intended for the identity preserved market.	Baretta is a full-season, high-yielding variety.
Duraking is a high-yielding, late variety with good lodging resistance and high test weight and is intended for the general purpose market.	Chico is a full-season, high yielding variety with excellent lodging resistance.
Havasu has intermediate yield potential, medium protein, high test weight and is intended for the identity preserved market.	Cochise is a short-season, high-yielding variety intended as a replacement for Barcott.
Helios is a high-yielding, early maturing variety with good color and milling quality and low Cd content.	Commander is a full-season, high-yielding variety with good lodging resistance.
Kronos is an early-maturing variety with medium yields and is intended for the general purpose market.	Kopious is a short-season, high-yielding variety with excellent lodging resistance.
Ocotillo is a high quality durum similar to WestBred 881 except is later, taller, and has a larger head.	Max is a very full-season, high-yielding variety.
Orita is a full season variety with high yield potential, good lodging resistance, and high grain protein content.	Nebula is a full-season, high-yielding variety with high test weight.
Platinum has high yield potential, high HVAC, short stature and is intended for the identity preserved market.	Poco is a very short-season, lodging resistant variety developed for double cropping.
Q-Max is a selection from Crown that is later in maturity and higher yielding.	WHEAT
Ria is intermediate in yield potential and quality.	Cavalier has higher yield potential and later in maturity than Yecora Rojo.
Sky is a short-statured variety with good quality characteristics.	Joaquin is a high yielding variety similar in maturity to Yecora Rojo with good protein and excellent baking characteristics.
Topper is a late maturing, high-yielding, tall variety with good lodging resistance, high test weight, and general purpose quality.	Yecora Rojo is an early-maturing variety with stable yields and desirable quality characteristics.
WB-Mead is a late maturing, high-yielding variety with good lodging resistance and is intended for the identity preserved market.	<i>Mention of a particular variety or company does not constitute endorsement by the University of Arizona Cooperative Extension. Additional copies can be obtained from your local University of Arizona Cooperative Extension office.</i>
WB-Mohave is a high-yielding, medium maturing variety with good quality characteristics.	
Westmore is most similar to Kronos except it is higher yielding, has smaller kernels, and the semolina is more yellow.	

Written by

Dr. Michael J. Ottman
University of Arizona
Cooperative Extension

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Summary of Small Grain Variety Characteristics for Arizona (2012)¹

Variety	Breeding source ²	Grain yield lbs/acre	Test weight lbs/bu	Seed weight g/1000	Height inches	Lodging %	Heading date	Maturity ³ date	Grain protein %	HVAC %
BARLEY										
Baretta	APB	6530	52.3	45.2	32	15	3/20	4/30	11.6	•
Chico	WPB	6169	51.8	37.5	28	0	3/20	5/01	11.2	•
Cochise	WPB	6012	52.2	38.8	30	12	3/11	4/25	11.2	•
Commander	WWW	6164	51.2	43.2	31	11	3/23	5/02	11.5	•
Kopious	APB	6435	52.7	43.9	30	1	3/14	4/25	11.6	•
Max	WWW	6507	52.1	44.2	31	20	3/25	5/05	11.1	•
Nebula	WPB	6244	52.8	46.8	33	13	3/19	4/29	12.1	•
Poco	AC	4515	51.3	37.9	22	0	2/26	4/10	•	•
DURUM										
Crown	WWW	6547	60.8	49.5	37	7	3/29	5/09	13.6	98
Duraking	WWW	6938	63.4	46.8	34	7	3/27	5/07	13.0	98
Havasu	WPB	6568	64.1	51.9	35	18	3/25	5/05	13.4	98
Helios	APB	7189	63.0	47.0	35	23	3/23	5/04	13.2	98
Kronos	APB	6521	62.8	53.4	35	31	3/23	5/05	13.4	97
Ocotillo	APB	6229	63.1	49.2	38	15	3/26	5/06	14.1	99
Orita	WPB	6700	61.8	53.0	35	4	3/29	5/08	14.3	98
Platinum	WWW	6628	62.8	44.2	32	14	3/27	5/07	13.1	98
Q-Max	WWW	6572	61.0	48.2	38	4	3/30	5/10	13.2	97
Ria	WWW	6471	62.7	45.5	36	16	3/29	5/07	13.3	96
Sky	APB	6267	61.3	44.1	33	20	3/25	5/07	13.3	99
Topper	WWW	6904	64.1	44.4	37	9	3/31	5/09	12.7	96
WB-Mead	WPB	6856	62.3	47.8	36	6	4/01	5/09	13.8	99
WB-Mohave	WPB	7055	63.5	50.0	35	15	3/27	5/07	13.8	99
Westmore	APB	6636	63.0	45.4	35	37	3/24	5/05	13.9	98
WHEAT										
Cavalier	WWW	6506	62.8	44.4	33	11	3/29	5/03	13.5	98
Joaquin	WPB	7021	63.9	45.5	35	9	3/24	4/30	13.9	97
Yecora Rojo	UC	6235	62.9	44.1	32	8	3/25	4/30	13.8	97

¹ Since not all varieties were in each test, performance was summarized using least-squares means. Most of this information is derived from trials conducted in Maricopa, Pinal, and Yuma Counties planted in late November through mid-January. Actual variety performance may differ from these results.

² Breeding source: AC=Anderson Clayton, APB = Arizona Plant Breeders, WPB = WestBred, WWW = World Wide Wheat, UC = U. of California.

³ Maturity: Physiological maturity, which is about 2 weeks before harvest ripe stage.

Moroccan milling firm visits handlers in AZ–CA Desert Durum® industry

The AGRPC and the California Wheat Commission (CWC) hosted a delegation representing a large Moroccan milling firm over several days in early October, 2012. Representatives of Group FORAFRIC, producers of flour marketed under the MayMouna brand, traveled to Desert Durum® country at their own expense to explain their interest in our high quality durum grain and to develop contacts that could lead to future purchases of Desert Durum®. The visitors were accompanied by a representative of U.S. Wheat Associates (USW), which facilitated the trip. Local travel and contact arrangements were made by AGRPC and CWC staff.

Durum grain sources for the Moroccan market

Although Morocco annually produces a significant amount of durum wheat, the travelers explained that it is largely consumed by the public in small quantities by the long-standing ritual of citizens carrying a kilo or two of grain, sometimes daily, to a local artisan shop where it is ground or milled into flour that is carried back to the home for immediate use in baking breads and other products.

In contrast, virtually all of the durum that is milled commercially in Morocco is imported. The Canadian Wheat Board (CWB) had been a favored supplier of durum to Morocco for decades, aided by the CWB's ability to buy business by pricing grain without concern for profit margins. Now that the CWB has lost its single-desk seller advantage, the Moroccan milling industry is prompted to investigate other suppliers. And, USW has been encouraging the local industry to consider U.S. durum for years – hence the interest of this major milling company to visit the desert. Coincidentally, the delegation visited Canadian grain marketers before traveling to Arizona and California.

Moroccan semolina uses and marketing

European and Western Hemisphere markets primarily use semolina flour milled from durum and other hard wheats to make pasta products. However, much of the durum semolina milled in North Africa, including Morocco, is used to make couscous and baked products – bread, rolls, etc. Only about 5% of durum milled in Morocco goes into making pasta.

Group FORAFRIC is a market leader in Morocco with its MayMouna brand of semolina and bread flours. The company operates flour mills in Casablanca, Safi, Marrakech, and Essaouira, with capacity to grind 500 metric tons of both durum and hard wheat daily. The company prides itself for its high quality products that sell at higher price points than its competition. It is constantly subject to copy-cutting by competitors when it introduces new products or marketing twists.

Semolina flour is widely sold at retail in Morocco. A bright yellow color is the most important aspect of quality in consumers' eyes. In fact, most retailers display their semolina stock in open-topped bags so that customers can see the actual product and run it through their fingers before buying. On the other hand, protein content is not a major factor in determining semolina quality, with 10.5% (12% moisture basis) considered adequate.

Southwestern U.S. itinerary

The group began its four-day trek through Desert Durum® territory with a visit to the San Joaquin Valley, arranged by CWC Executive Director Janice Cooper. A flight from Fresno to Phoenix put the group in AGRPC's hands for two days. A visit to Quick Grain Corporation's office in Phoenix was followed by a stop at Arizona Grain, Inc. in Casa Grande. Council member Eric Wilkey, Arizona Grain's president, and several company staff discussed the details of contracting Desert Durum® in central Arizona. Lunch at a local Mexican restaurant was hosted by the AGRPC. Council member Paul "Paco" Ollerton joined the group for lunch.

AGRPC Executive Director Al Simons was the group's driver in a rented van during the ground travel portion of the trip between Phoenix, Yuma, and El Centro, CA, where the group was handed off to the CWC for a final day of industry exchanges. In Yuma, Barkley Seed, Inc. entertained the group in a morning session, with AGRPC member Michael Edgar, Vice President and General Manager, providing local details of contracting durum production for export. AGRPC Chairman

David Sharp and former WestBred cereal breeder Kim Shantz joined the group for dinner.

Will Desert Durum® get shipped to Morocco?

The FORAFRIC travelers appeared to develop a favorable impression of our Desert Durum® industry, according to Peter Lloyd, Technical Director of USW's Middle East, East and North Africa Region, who accompanied the group. The company is particularly interested in developing confidential agreements with its suppliers and would be interested in acquiring sole rights to a favored Desert Durum® variety. Several sample quantities of grain of different varieties were shipped to Casablanca for test milling. FORAFRIC maintains ocean port facilities in Morocco that facilitate unloading and transport to its mills. On balance, there is reason to think that Desert Durum® will eventually enrich the food choices available to Moroccan consumers.

In addition to Mr. Lloyd, the FORAFRIC group included the following individuals:

Ms. Alia Benomar – Group Procurement Director and company shareholder

Mr. Olivier Pioux – Group Technical Director – previously visited Arizona as part of a Moroccan trade team in June 2006

Mr. Azzedine El Omari – Director General (CEO) of Le Grands Semouleries de Safi and Les Grands Moulins d'Essaouira

Mr. Rafik Ouhaj – Director General (CEO) of MayMouna Grains



Representatives of the FORAFRIC Group of milling companies in Morocco met with Arizona's durum handlers during a self-sponsored visit to the state in October 2012. From left – Azzedine El Omari, Peter Lloyd (U.S. Wheat Associates), Olivier Pioux, Rafik Ouhaj, and Alia Benomar.



Members of the FORAFRIC Group made an early-morning visit to the Phoenix office of Quick Grain Corp., a long-time handler in the Maricopa County grain industry. From left – Olivier Pioux, Azzedine El Omari, Alia Benomar, Glenn Quick (President of Quick Grain), Stafford Smith (Quick Grain), Rafik Ouhaj, and Al Simons (AGRPC executive director).

AGRPC member Eric Wilkey travels with USW board team to Latin American countries

Team visits & thanks customers of U.S. wheat; learns their market concerns; praises USW's effectiveness

Eric Wilkey, president of Arizona Grain, Inc. and AGRPC member from Casa Grande, spent two weeks in November 2012 visiting milling and baking buyers of U.S. wheat classes in Chile, Peru, and Mexico. Wilkey was part of a small "board team" of U.S. wheat producers assembled by U.S. Wheat Associates (USW), the non-profit export promotion organization comprised of 18 state wheat check-off commissions such as the AGRPC. Wilkey joined two wheat growers representing Montana and Oklahoma on the tour, which was led by USW Market Analyst Casey Chumrau. AGRPC qualifies to nominate a board team member every two-to-three years as a result of its USW full-member status. Funding for the board teams is largely provided by USDA's Foreign Ag Service (FAS) export promotion budget.

USW board teams are intense, regional visits that provide representatives of USW member agencies opportunities to review the work of local USW offices, learn about local milling wheat needs, and thank milling and baking customers for their business. The teams also strive to promote the image of the U.S. as the world's most reliable supplier of wheat. Although individual team members often grow different wheat market classes, the members focus on representing all classes before characterizing their own particular classes, according to Wilkey. Arizona, of course, is well known for producing very high-quality durum wheat, the class bred and produced by Arizona Grain and its growers as well as by the other private breeding programs in the state. Grower team member Chris Kolstad of Ledger, MT produces hard red winter, hard red spring, and durum classes. Cherokee, OK grower Kenneth Failes produces the hard red winter market class.

Wilkey reports that South American millers are most concerned about volatility in their imported wheat prices because they operate on relatively small margins that are less than recent levels of market volatility, thus presenting significant challenges in managing risk. He suggests that these companies will need to develop suitable risk management practices along with their expending business operations. Although U.S. origin wheat has historically enjoyed significant market share in some Latin countries despite competing with subsidized wheat from a number of origins, the recent rally in U.S. wheat prices (following strength in corn) has eroded U.S. market share. Also, Wilkey says that more Russian wheat of hard red winter class equivalency is arriving in Latin America. This development could affect sales of hard red winter to Mexico, which is usually among the top three importers of U.S. wheat.

Desert Durum®, grown in Arizona and California, has a reputation of being the best quality durum available in Latin American markets, says Wilkey. Unfortunately, much of the pasta produced for those markets is made with flour from bread wheat rather than durum, which is more expensive. Price is the main factor in this practice and will be hard to overcome, according to Wilkey. Still, a growing middle class is preferring pasta made from durum semolina, particularly in Peru. One Peruvian mill is buying subsidized Mexican durum rather than operating its own facility.

The team spent the last three days of its trip attending the annual meeting of the Latin American Association of Industrial Millers, held this year in Merida, Mexico. The meeting offered the team opportunities to interact on behalf of U.S. wheat classes with over 400 milling representatives from all over the Latin sector.

U.S. Wheat Associates plays crucial export role

USW's mission statement is "Develop, maintain, and expand international markets to enhance the profitability of U.S. wheat producers and their customers." This mission positions USW to: address issues that affect the profitability of both producers and customers; focus on the future of the industry; serve the needs of its members; and, educate and assist international customers to purchase U.S. wheat.

Wilkey lauds the professionalism and effectiveness of the USW staff in the Latin American regions. "They are extremely

knowledgeable, informed and respected by the milling industry people we met. They do an excellent job of promoting, discovering opportunities, and providing valuable resources to the customers of US-grown wheat," he says. The current USW regional vice presidents, Alvaro de la Fuente in Santiago, Chile, and Mitch Skalicky in Mexico City, have each effectively represented U.S. wheat growers for 35 years.

Most of USW's 15 foreign offices operate with USDA / FAS export promotion funding. USW's annual producer assessment revenue of about \$5 million is leveraged to acquire about \$12 million in competitive bidding for FAS funds totaling about \$235 million. An economic analysis, published by a Cornell University economist in 2010, indicates that \$115 is returned for every \$1 of combined producer and FAS funds that are invested in export promotion.

However, the congressional stalemate over provisions of a new farm bill is seriously jeopardizing USW's future and the future of all ag export promotion programs. Without an immediate extension of the last farm bill's spending authorizations or a new bill that retains most funding for FAS export programs, USW's foreign export programs are in jeopardy of closing for lack of funding. ✕



Fresh bread dominates many Latin American markets. AGRPC member Eric Wilkey checked out a supermarket display of fresh bread in Lima, Peru while traveling with a U.S. Wheat Associates' board team in November 2012. A majority of consumers in Peru and Chile buy their bread fresh daily.



Members of the USW board team that visited Peru in November were Eric Wilkey – AZ (left) and (from far right) Kenneth Failes – OK, Chris Kolstad – MT, and Casey Chumrau – USW. Alvaro de la Fuente – USW Regional VP in Santiago (second from left) hosted the group in South America. Jaime Salomón, president of Anita Foods, Lima, Peru (white shirt) visited Arizona with a USW trade team in 2000. Anita Foods owns 23% of Peru's pasta market and 11% of its flour market.