

Competition versus co-operation in crop production - demand enhancement versus supply control

E.C.A. Runge

Professor and Head of the Department of Soil and Crop Sciences,
Texas A & M University, College Station Texas 77843-2474

The three objectives of these papers are; to familiarize you with United States (US) wheat production; to share with you information compiled by Dr Dennis Avery on the amount of excess crop production capacity in the World; and to discuss "Solutions to Problems of Oversupply in Crop Agriculture" (Demand Enhancement as a "Sink" for Excess Crop Production).

United States wheat production

The US produces hard red winter (HRW), soft red winter (SRW), hard red spring (HRS), white (W) and durum (D) wheat. Wheat is produced in virtually every State. HRW makes up the largest production and acreage, with Kansas as the major producer. SRW is concentrated in the midwestern States with the largest production and acreage in Ohio. North Dakota is the largest producer of HRS and D wheats. Washington is the largest producer of W wheat. Roughly 50% of the wheat produced in the US is HRW, 20% is HRW, 18% is HRS, 11% is W and 1% is D. US wheat growing areas are shown on Figures 1 through 4 (The Wheat Grower, Volume 11, Number 8, October 1988).

US wheat supply and use from 1971 through 1988 crop years are given in Figures 5 and 6 (The Wheat Grower). The smallest acreage occurred in 1972 when 47.3 million acres (19.1 million ha) were harvested. The largest acreage occurred in 1981 when 80.6 million acres (32.6 million ha) were harvested. Yields varied much less from a low of 27.3 bushels per acre (1.8 t/ha) in 1974 to a high of 39.4 bushels per acre (2.6 t/ha) in 1983. Yields in most years were in the middle 30 bushels per acre range. The amount of US exports and ending stocks are given in Figure 6. Exports ranged from 620 to 1,771 million bushels in 1971 and 1981, or 16.6 to 48.2 million metric tons, respectively. Ending stocks of wheat have varied from 340 to 1,905 million bushels in 1973 and 1985, or 9.3 to 51.8 million metric tons, respectively.

The class and amount of wheat exported for calendar year 1987 totalled 1,141 million bushels or 31.0 million metric tons. The wheat exported consisted of 566.1 of HRW, 140.0 of SRW, 183.5 of W, 179.5 of HRS, 69.4 of D and 2.5 million bushels of mixed class, respectively. Wheat exports are commonly made up of more than 50% HRW in most years.

The major exporters of wheat in the World are Argentina, Australia, Canada, European Community and the US. The percentage of the World trade supplied by each of these countries for marketing years 1983/84 to 1988/89 is given in Figure 7 (The Wheat Grower). Argentina supplied between five and 10%, Australia between 10 and 19%, Canada between 18 and 23%, European Community between 14 and 19% and US between 29 and 43% respectively. Exports as a percentage of production for the same marketing years is given in Figure 8. All major exporting countries characteristically export more than 50% of their production except for the European Community which exported between 30 and 33%. Australia exported almost 90% of their production in 1985/86 and 1987/88. The US exported less than 50% of its production in only the 1985/86 marketing year.

The export price for wheat in US\$ (FOB port) is given in Figure 9 (World Grain Situation and Outlook, USDA Foreign Agr. Service, May 1989). The highest price was received by Canada for #1 CWRS, Vancouver. The price received for Australia standard white and US #2 HRW is nearly identical for the 1981 through 1988 time interval. The price received by US farmers is also given (The Wheat Grower). US farmers received between 75 and 85% of the FOB gulf price for their wheat on the average during this 1981 through 1988 time interval.

Amount of excess crop production capacity in the world

(Personal Communication, Dr D. Avery, Delta Council Speech, Cleveland, Mississippi, October 1988)

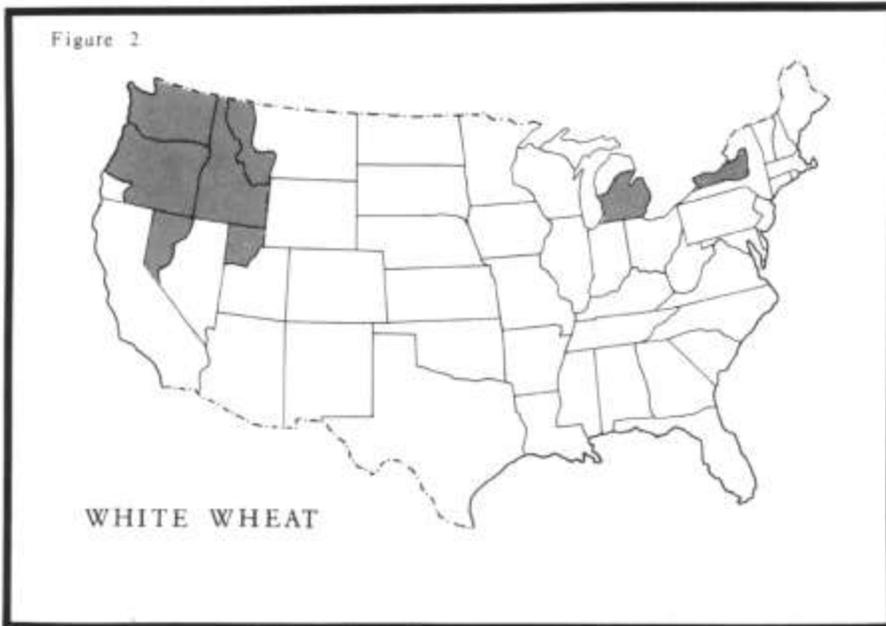
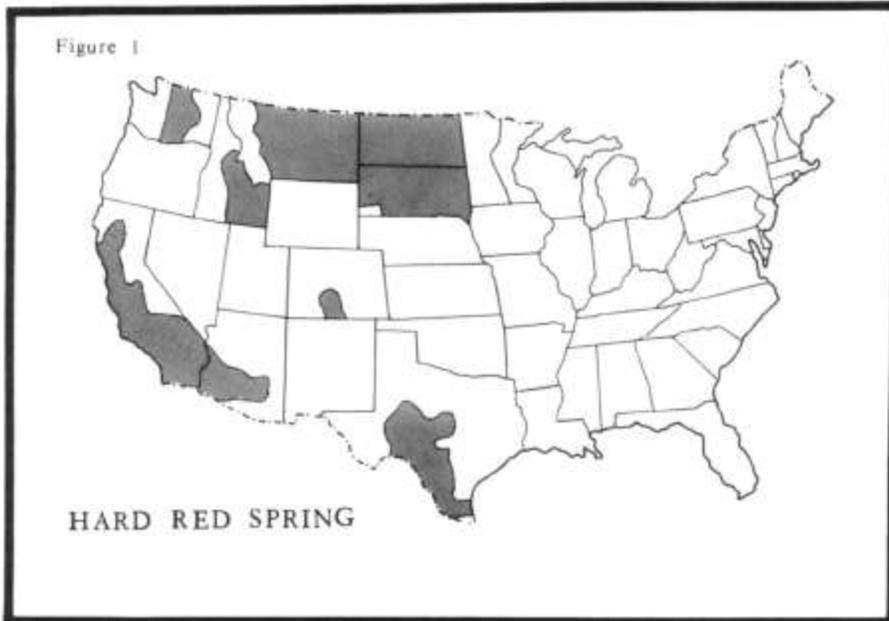
In the US Dr Dennis Avery is recognized as one of the foremost experts on crop production around the World. He was formerly with the US Department of Agriculture's Economic Research Service and then with the US State Department as Senior Agricultural Analyst. He is now with World Perspectives in Washington, DC. He has become recognized for his outspoken criticism that all governments involved in world trade must support a common resolution aimed at breaking down sophisticated trade barriers and reducing export subsidies. He has estimated that the World has 150 million metric tons of excess crop production capacity at the present time under average weather conditions. Approximately 100 million metric tons of that excess crop production capacity is in the US.

He expects that the move toward individual country self-sufficiency will continue. India is often mentioned as an example. India was able to go through the worst monsoon failure of a century in 1988 and made up a shortfall of 20 million tons of rice and wheat from storage. Avery expects that Russia will not continue being the growth market for grain exports that it has been in the past decade. He expects that the initiatives of Mr Gorbachev will make a significant change in the long term productivity of Russian agriculture. If so we will almost certainly see Soviet imports stop growing and may well see them start to decline. He also expects Brazil and Argentina to continue increasing crop production for export as infrastructure in those countries, and other similar countries, continues to improve. China is now more of an unknown than it was several months ago.

In addition we are living in the midst of another agricultural revolution - the genetics/biotech revolution - and its promise for increased productivity. When biotech contributions will increase crop productivity is actively debated. Never-the-less, opinion is almost unanimous that crop productivity will be enhanced by these new techniques. The question we face is whether or not future crop production will rise faster or slower than demand. Avery contends that there are not nearly so many hungry people as the television commentators would lead you to believe.

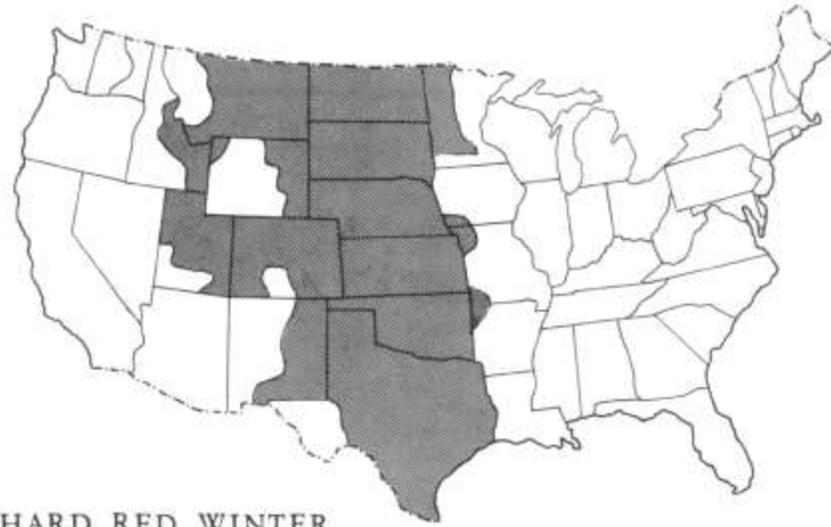
All of this agricultural productivity is available at a time when the traditional markets for food and fiber are increasingly saturated. Western Europe has gone from a net grain importer of 20 million tons fifteen years ago to a net exporter of probably 40 million tons a year when grain fed to their livestock and exported is counted. India has already been mentioned. Eastern Europe has gone from a modest net importer to a modest net exporter. The result is that at today's prices and with today's trade barriers we have a surplus capacity in the affluent countries that Avery estimates at 150 million metric tons per year. He further contends that there is no way we can sell an additional 150 million tons of grain or grain equivalent farm products at current prices in the World and that there is not even the possibility of giving it away. Avery estimates that if all trade barriers and export subsidies were eliminated demand would only rise 50 million tons at current prices.

United States of America Wheat growing regions



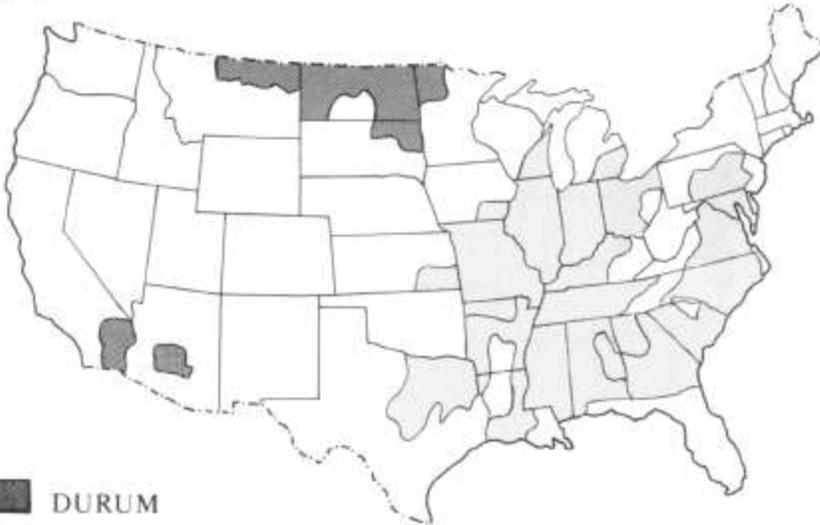
United States of America Wheat growing regions

Figure 3



HARD RED WINTER

Figure 4



DURUM



SOFT RED WINTER

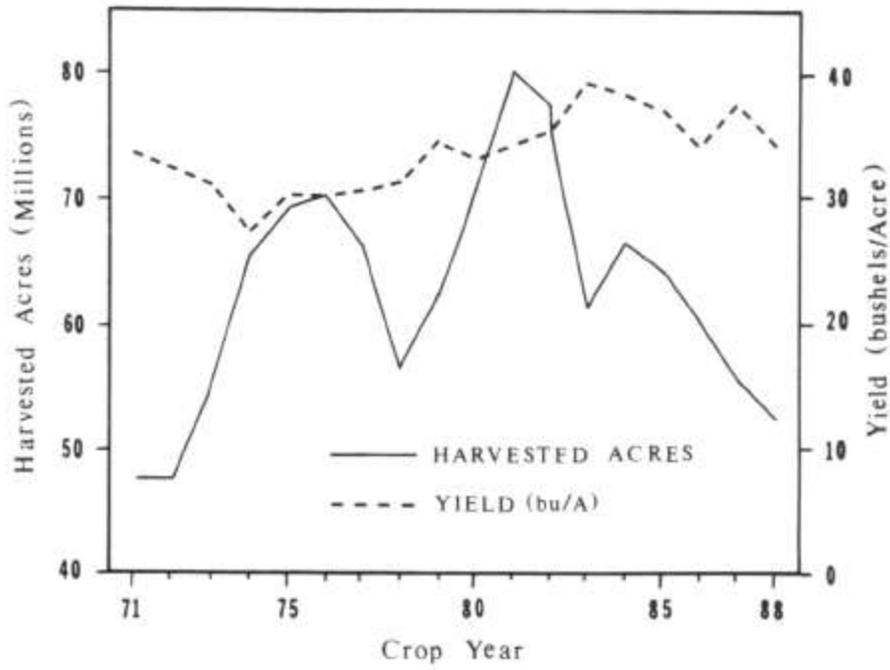


Fig. 5. U.S. harvested acres and yield/acre 1971-88

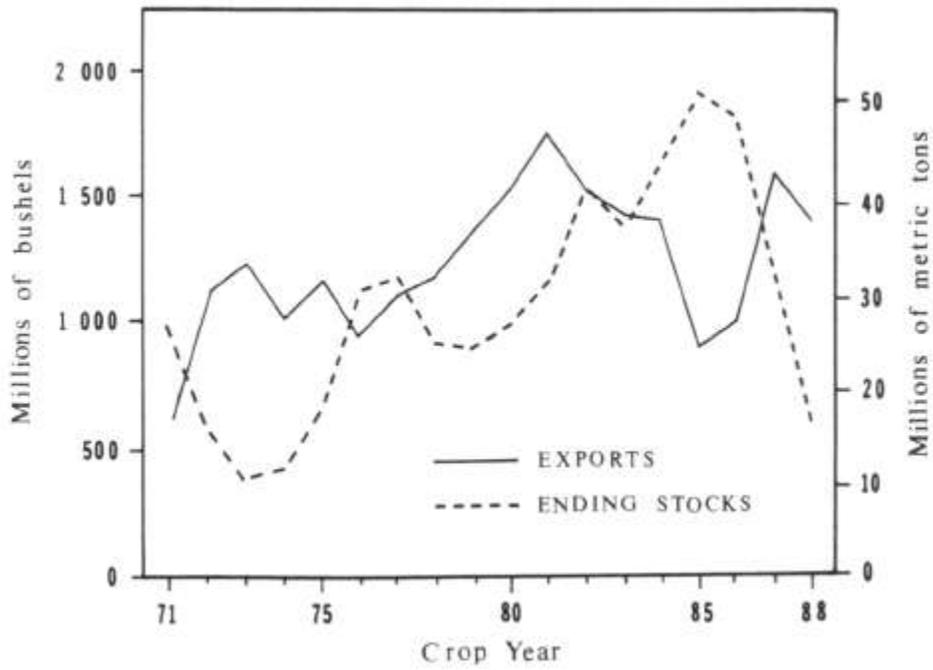


Fig. 6. U.S. Exports and ending stocks 1971-88

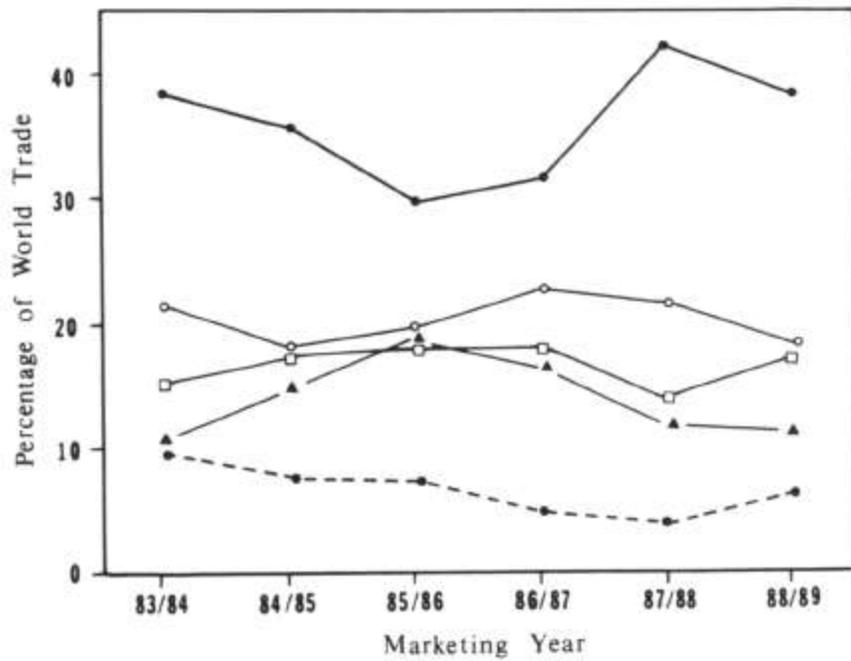


Fig. 7. Wheat supply : 1983/84 - 88/89

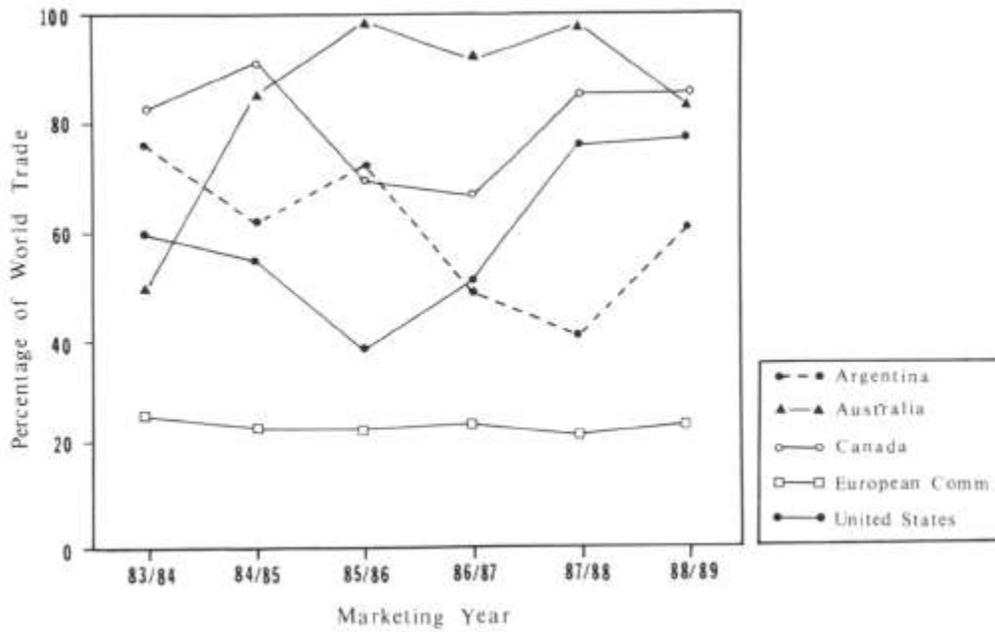


Fig. 8. Exports as a percentage of production 1983/84 - 88/89

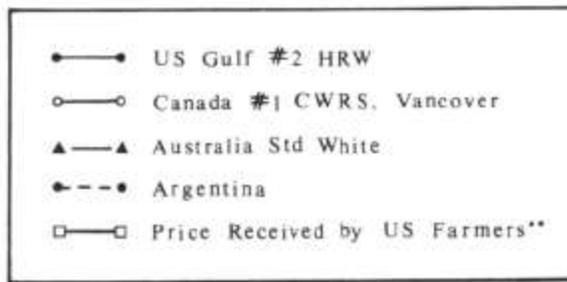
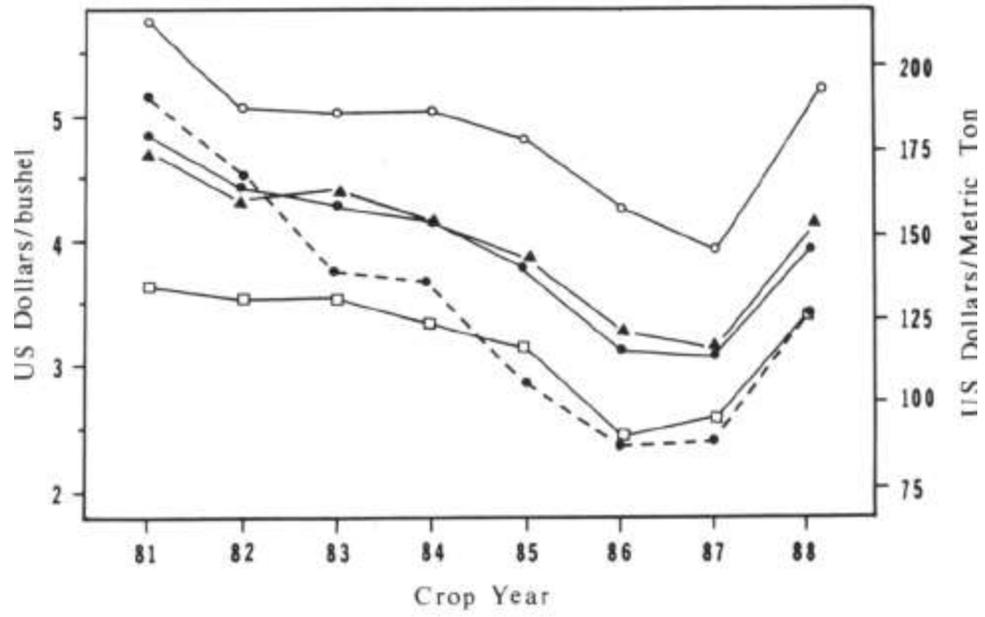


Fig. 9. Export price for wheat \$US (FOB part)