



USAID | **IRAQ**
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Canola in Iraq

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Table of Content

- Background**..... - 1 -
- Canola** - 2 -
 - Climate - 3 -
 - Soil..... - 3 -
 - Planting Date - 3 -
 - Seeding Rate..... - 3 -
 - Fertilization - 3 -
 - Economics/Profitability - 3 -
- Conclusion** - 5 -
- Recommended Action** - 5 -

Background

The focus of the United States Agency for International Development -*Inma* Horticulture Team during the first three years of the program has primarily been on expanding the variety of fresh fruit and vegetable products produced in Iraq, as well as extending the harvest season for existing fruit and vegetable production.

Some work was done on improving wheat production in years one and two, and in developing alfalfa production in year three of the USAID-*Inma* program. The priority during the first three years of USAID-*Inma*'s horticultural program was placed on high value vegetable crops. USAID-*Inma* is now expanding the focus of the horticultural program to include a broader range of industrial crops.

Potential oil seed crops such as canola, safflower, and soy beans produce both vegetable oil and high protein meal for livestock feed and could be used to supplement, existing cotton and sunflower production for vegetable oil production. Cotton produces fiber as well as vegetable oil and high protein meal. Canola and safflower can be fall planted crops in Iraq, while sunflower, soy beans and cotton require warmer temperatures and a spring planting.

Wheat, barley, rice, sunflower, and corn are field crops supported by the Iraqi Government by purchase at above world market prices. These purchases are a disincentive for the introduction and production of competing crops. However, winter canola could be considered both as potentially profitable and a useful rotation crop supporting and improving both wheat and barley production potential.

This assumes that there is a willing buyer at near world market prices for the canola. The full value of canola comes from the production of vegetable oil and the byproduct high protein meal for livestock. There is limited capacity within Iraq to process oil seeds and this could limit the market for canola, as well as other oil seed crops suitable for production in Iraq, so this paper will also look at the potential of producing canola only as a full oil livestock feed.

Canola

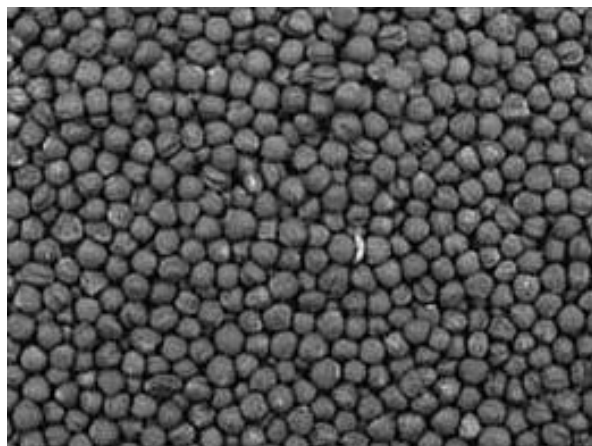
The rapeseed industry in Canada adopted the name canola in 1978 to identify and separate the cultivars of *Brassica napus* and *Brassica campestris* which are genetically low in erucic acid (<2%) and glucosinolates. Canola is closely related to turnip, collards, mustard, cabbage, cauliflower and broccoli, all members of the crucifereae family. Canola (*Brassica napus*), also known as rape, is an annual crop that can be grown throughout Iraq. Canola needs similar management practices to small grain, yet requires no additional equipment for planting or harvest. Canola is grown in the southern United States and in southern Pakistan under soil and climatic conditions similar to Iraqi. Canola fits the same cropping system sequences that wheat or other small grains do in those areas. Data from trials in Florida and southern Pakistan indicate that canola should be planted from late October to early November. However, December plantings have also done well in Florida. Harvest for small grain in these areas generally starts 2 or 3 weeks ahead of Canola. This 2-3 week delay in harvest would shorten the potential time interval for double cropping with summer crops in Iraq. However, do to the reduced volume of irrigation water available during the summer, this may not be a large issue.

Growers in the southwestern United States plant winter canola in rotation with wheat, which assists them in weed, insect, and disease control. A mono culture of wheat or barley over a period of time can exacerbate any of these problems. Planting winter canola in rotation can interrupt the conditions, which favor the development and spread of these pests. While the use of herbicides does not appear to be wide spread in Iraq, a rotation allows the use of different herbicides against weeds and better long-term control.

Winter canola plants also have large taproots that leave the soil in good shape for replanting small grain in no-till fields. No-till production of small grains is not routinely practiced in Iraq, but its use should be encouraged.

Canola is classified as salt tolerant, some varieties have more tolerance than either barley or wheat, and the crop could also be considered for that reason as salinity problems in Iraq become worse. Canola is less tolerant to drought than small-grain crops.

Canola and mustard seed are a rich source of oil and protein. The seed has oil as high as 46-48 percent. Whole seed meal has 43.6 percent protein. Canola meal is an excellent feed for animals.



Canola Seeds



Golden Canola Field

CLIMATE

Canola is well adapted in temperate regions and requires cool temperature for vegetative and reproductive growth, but can suffer from frost damage. The growth cycle of canola may vary substantially by variety. Canola grows best under relatively cool temperatures up to flowering. After flowering, it can tolerate higher temperature, however, more heat and drought stress may result in a reduction of seed size, crop yield and oil contents.

SOIL

Canola can be grown on a wide range of soils including both sand and clay types. Crop can tolerate a variable range of pH from 5.5 to 8.0. However, the most suitable soils are those that are: deep and free from hardpan, allow good taproot development, uniformly textured, allow even establishment.

PLANTING DATE

Timing will be influenced by soil, variety, temperature, and moisture level. The estimated planting schedule for different areas in Iraq is;

Southern and Central Iraq;	Plant October 15 to November 15
Northern Iraq	Plant September 15 to November 1

SEEDING RATE

Pakistan and US recommendations are 1 Kg per donam to 1.75 Kg per donam depending on the type grown. Seeding rates above 1.5 Kg per donam with B. Campetris may cause tall spindly plants which will lodge. Seed should be planted in rows 15 CM to 30 CM apart. A grain drill will work if it is equipped with a small seed attachment. Brillion seeders imported by USAID-*Inma* for alfalfa are not configured to plant in rows.

FERTILIZATION

Canola has similar fertilizer requirements to wheat with perhaps optimum growth requiring slightly less N and slightly more P when compared to wheat.

ECONOMICS/PROFITABILITY

While no general statement can be made, wheat normally has a higher yield potential than canola and canola will have a higher price per ton. Iraq's subsidy on wheat makes wheat as valuable as canola.

The U.S. Kansas City price for wheat on Oct 22, 2010 was \$232.42 MT
The most current price available for canola was Aug 27, 2010 @ \$477.40 MT

The 2009 – 2010 prices for wheat in Iraq;	2010 – 2011 prices
#1 \$720 / MT	#1 \$551 / MT
#2 \$636 / MT	#2 \$466 / MT
	#3 \$381 / MT

For the purposes of the USAID-*Inma* cost / revenue comparison, it is assumed that all wheat will be sold at the 2010 – 2011 #2 price of \$466. If the average return is higher this will further increase the difference in gross returns. A comparison of estimated Iraqi costs and returns for wheat and canola follows.

Wheat				Price	Assumed #2 Wheat
Revenue donum	MT/Donum	MT/Donum	MT/Donum	Value Iraq/MT	
Grain	0.75	1.00	1.25	\$466	
Straw	0.5	0.70	0.90	\$140	
Total revenue					
	\$420	\$564	\$709		
Estimated costs					
Cultural	\$207				
Harvest	\$17				
Overhead	\$19				
Total cost					
	\$243				
Gross profit/donum					
	\$177	\$321	\$466		
Canola	Yields exceeding 1250 kg per donum are achieved from irrigated winter				
Production of adopted varieties in US					
Revenue donum	MT/Donum	MT/Donum	MT/Donum	Cuurent market price	
Seed	0.50	0.75	1.00	\$477	
Total revenue					
	\$239	\$358	\$477		
Estimated costs					
Cultural	\$277				
Harvest	\$24				
Overhead	\$19				
Total Cost					
	\$270				
Gross profit/donum					
	\$32	\$88	\$207		

The costs shown above are estimates. The breakdown of these estimates is shown in Annex I

Canola could be an economic alternative feed without extracting the oil if there is great enough demand for whole seed as a livestock feed, but USAID-*Inma* would expect a higher total return from it being processed into vegetable oil and concentrate feed.

Work done in Canada shows;

The following table shows the value of a whole canola seed containing 20.5% crude protein and 41% oil on an as fed basis, when compared to the following feeds at these August 2004 prices per ton; barley \$102, wheat \$125, corn \$165, canola meal \$180, soybean meal \$335, barley silage \$32, alfalfa hay \$105 and tallow \$510.

The opportunity value of whole canola seed (20.5% CP and 41% oil) in various feeding programs as shown in the table below. These values represent the value of whole seed canola when compared to feeds and prices above. E.G. if grain corn fed to lactating dairy cows is \$165 per ton, then whole seed canola for lactating dairy cows would have a theoretical potential value of \$390 per ton.

Feeding Program	Value (\$/ton) Whole seed Canola
Broiler grower	\$405 to 415
Layer	\$380
Dairy lactation	\$390
Beef grower	\$253 to 275

While these values are maximum opportunity values, a simple deduction for processing and transport can be used to determine a more realistic value. The feed prices shown above for barley, wheat, corn and alfalfa are lower than current Iraqi prices, so canola justifies further evaluation as whole seed for livestock feeding.

Conclusion

Canola may have a useful place in Iraqi farming plans, but while it can be profitable at current prices and potential yields, it may be difficult for canola to compete with Iraqi wheat at wheat's current subsidized price. Acceptance of the crop requires that the advantages of crop rotation can be established in the minds of Iraqi farmers and a demand for canola is identified.

The economics of canola production strictly as a full oil, livestock feed needs further study, but could be an alternative if processing capacity to produce oil is the factor limiting plantings.

Canola has the advantage of supplying two products, vegetable oil and high energy livestock feed, that are currently being imported. It also is a winter crop and it is a better fit with the seasonal water supply than sunflower, soy beans and cotton.

Canola would seem to be a good choice for oil seed production and it could be a viable economic alternative to small grain production particularly if Iraq reduces or eliminates the subsidy on wheat or if the demand for livestock feed justifies the feeding of whole canola seed because there is insufficient oil extraction capacity within the country.

Recommended Action

It is too late in the current planting season to plant canola for a 2011 harvest on the USAID-*Inma* demonstration farms. Planting in the fall of 2011 should be considered if the USAID-*Inma* activity is extended and operating at that time. It should be considered as a high potential crop by any follow on activity to the USAID-*Inma* program.