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EXTENSION

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SunOleic/High Oleic Peanuts¹

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SunOleic[®]/High Oleic Peanuts: A Step Forward

SunOleic[®]/high oleic is a new runner market-type peanut developed by the Florida Agricultural Experiment Station. The major advantage of this new peanut is its greatly improved oil chemistry compared to varieties with "normal" chemistry. SunOleic[®]/high oleic has about 80% oleic and only 2-3% linoleic fatty acid (FA), based on total fat content, which greatly improves the shelf-life of products made from the seed of these peanuts (Table 2).

The first high oleic peanut variety released in the world was SunOleic 95R, which originated from a cross with a University of Florida high oleic breeding line (F435), and a component line of 'Sunrunner'. SunOleic 97R was released in 1997 with improved characteristics over 95R (Table 1).

This change in fatty acid distribution will provide significantly better shelf-life for SunOleic/high oleic peanuts and peanut products, compared to normal chemistry peanuts. This oil chemistry is essentially equal to, or better than, olive oil, which is known for its high monounsaturated fat content (Figure 1).

Increased Shelf Life

The dramatic change in the fatty acid profile will translate into significantly better shelf-life for SunOleic/high oleic peanuts and peanut products, compared to regular peanut cultivars. Laboratory studies indicate that SunOleic peanuts will last from 3 to 15 times longer than regular peanuts before going rancid (oxidation). High oleic peanut oil even enhances the shelf-life of regular peanuts when cooked in the high oleic peanut oil.

Health Benefits

The high level of oleic (18:1) or monounsaturated FA in high oleic peanut significantly lessens the rate of oxidation, compared to regular peanuts. SunOleic peanuts are much lower in polyunsaturated fats, due to the lowering of linoleic fatty acid content, as well as significantly lower in saturated fat content, with lower palmitic (16:0) fatty acid (Figure 1).

One University of Florida study indicated that SunOleic peanuts, as part of a low fat diet, have the potential to help lower blood cholesterol (LDL) in humans with that problem. Another study found that

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when SunOleic peanuts were fed to pigs, their fat and blood chemistries had increased levels of monounsaturates and lower polyunsaturates. Both of these changes are considered to be desirable.

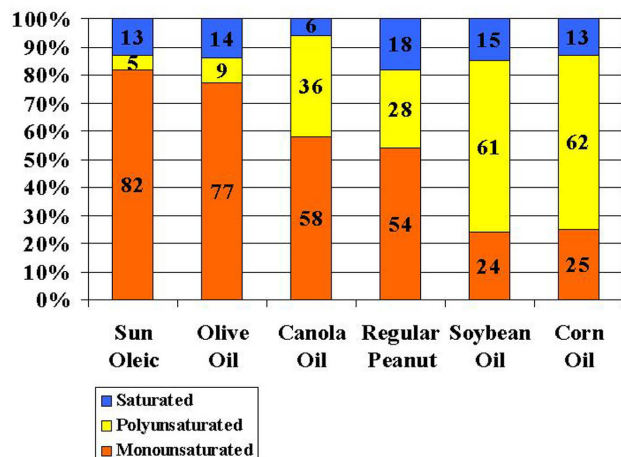


Figure 1. Comparison of Vegetable Oils

High monounsaturated fat diets vs. low fat diets

According to a press release by the Peanut Institute (1999), a study published in the American Journal of Clinical Nutrition reports that diets high in monounsaturated fats are superior to low fat diets for heart health. High monounsaturated fats like those in high oleic peanuts were found to:

- Lower total cholesterol
- Lower "bad" LDL cholesterol
- Maintain beneficial HDL cholesterol
- Lower triglycerides

Conclusion: Benefits of High Oleic Peanuts

- Extends shelf-life of oil & products
- Lowers LDL cholesterol
- Helps maintain good flavor
- Reduces saturated fat content
- Reduces risk from oxidation by products

SunOleic/High Oleic Peanut Production

High Oleic peanuts are currently grown mostly in west Texas, due to the negative effects of the tomato spotted wilt virus (TSWV). SunOleic 97R and most other high oleic cultivars are susceptible to TSWV (Table 3). New cultivars with more resistance to TSWV will have significant seed production in 2003, and allow production in the southeastern U.S.

Although high oleic peanuts are currently (2003) limited in supply, with about 150,000 acres grown in 2002, seed production will likely increase in 2003 to over 200,000 acres. Several new disease resistant high oleic peanut cultivars are available for 2003. An identity-preserved program, as used in seed certification, helps to maintain the quality assurance, and assists manufacturers in the purity of the high oleic trait. The University of Florida has three patents on the high oleic oil chemistry in peanuts. Further information can be obtained from the contacts listed below.

UF High Oleic Peanut Patents

Knauff, David H., Daniel Gorbet, and Allen J. Norden. 1999. Peanut oil from enhanced peanut products. U.S. Patent 5,922,390. Date issued: July 13.

Knauff, David H., Daniel Gorbet, and Allen J. Norden. 2000. Enhanced peanut products and plant lines. U.S. Patent 6,063,984. Date issued: May 16.

Knauff, David H., Daniel Gorbet, and Allen J. Norden. 2000. Enhanced peanut products and plant lines. U.S. Patent 6,121,472. Date issued: September 19.

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References

Peanut Institute. (1999, November 22). Good fat
peanut diet beats low-fat diet for heart health.
Retrieved June 9, 2003 from
[http://www.peanut-institute.org/11-22-
99_GoodFatPeanut_PR.html](http://www.peanut-institute.org/11-22-99_GoodFatPeanut_PR.html).

Table 1. Florida data on SunOleic 97R (1993-95)

Cultivar	Pod yield #/Acre	TSMK %
SunOleic 97R	4800	80.0
Florunner	4366	79.8

Table 2. Oil chemistry data

Cultivar	Oil %	Oleic %	Linoleic %	O/L ratio	Iodine value
SunOleic 97R	48.5	81.0	3.0	27.0	76
Florunner	48.3	54.0	25.0	2.2	93

Table 3. Data on new University of Florida peanut varieties in Florida tests at Marianna compared to Georgia Green, 1998-2001.

Entry	# Tests	Pod Yields (lbs./A)	% TSMK	Seed Count (#/lb.)	Disease*
Andru II**	12	4262	73.9	804	2.9
Georgia Green		3940	77.4	895	3.7
Norden**	35	4249	76.3	733	3.3
Georgia Green		3750	77.8	801	4.1
Carver	37	4386	74.6	683	2.7
Georgia Green		3818	78.0	779	4.2
Hull**	16	4668	76.0	636	3.0
Georgia Green		3693	77.6	791	4.2
DP-1	11	4653	76.4	732	2.3
Georgia Green		3681	77.7	796	4.3

*1-10 rating, 1 - no disease (mostly tomato spotted wilt virus).

**High Oleic varieties