2005 UPDATE OF THE WORLD'S ASPARAGUS PRODUCTION AREAS, SPEAR UTILIZATION, YIELDS AND PRODUCTION PERIODS

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Abstract

The estimates of asparagus producing areas, the periods of spear production and the utilization of spears are presented for the world's asparagus producing countries. These data are based on contacts with international asparagus researchers, growers and industry representatives. This poster presentation was a working poster display affording the participants of the 11th International Asparagus Symposium the opportunity to update and amend the presented data. The amended data are presented in this paper.

INTRODUCTION

Asparagus officinalis L. production areas in 65 countries are continually changing and are difficult to monitor since asparagus is considered a minor crop in most countries and the production data is usually reported under the broad term of "vegetable production". The collection of data on the recent changes in asparagus production in the various countries and the crop utilization has to be acquired from those people that are intimately associated with this crop.

The production areas in the asparagus industries throughout the world are the result of the worldwide increased consumer demand for this product and the changes in the economic conditions in the producing and consuming nations. International movements of fresh, frozen and canned asparagus are inter-related and dependent upon the consumption and production periods of the various countries. The largest increases in asparagus production in the last ten years has occurred in countries in the Southern Hemisphere and China and in countries with low labor rates where they can produce spears relatively cheaply and/or market their production during a higher priced market window in another country or hemisphere. Increased internal consumption and higher market prices have helped to stabilize the production in the countries with long histories of asparagus production, although trade agreements, increased imports and higher production costs in these countries has negatively affected their production areas.

The 1997, 2001 and 2005 world asparagus production data from the participants of the International Asparagus Symposia (IAS) and from author contacts provides an historical look at the changes that have occurred in the last 9 years in the world's

asparagus producing countries. During this period, the establishment of Free Trade Agreements in the Americas has led to the increases in the production and exportation of asparagus into the United States of America from Mexico, Peru and Chile while causing a decrease in production in the U.S.A. In Asia, China has continued to increase production to meet increased internal consumption and improving export markets.

An updated, worldwide, knowledge of the areas of asparagus spear production, the periods of production and the utilization of the spears is necessary for those involved in this industry to plan for changes in their respective countries.

MATERIALS AND METHODS

World asparagus production data from 1997, 2001 from the participants of the International Asparagus Symposia, (Benson 1999, Benson 2002) and from personal contacts in '03 and '05 were presented in tabular form in a working poster display at the 11th IAS. The poster display data included the numbers of hectares and the average marketable yields in each country that is known to have asparagus production. The areas are further estimated as to the changes that are taking place in each country, i.e., areas increasing, decreasing or stable and the spear type harvested, white or green, were presented. Estimates on the percent of spears used for fresh, canned or frozen spear markets and the percent of spears consumed in the domestic market or exported were presented as part of the posted display. The time during which there is any marketable spear production was presented as the spear production periods for each country.

The participants attending the 11th IAS were invited to update and amend the data that was presented so that any inconsistencies with actual areas, changes in areas and spear type and utilization could be corrected prior to publishing this paper. Those countries with amended data are included in this paper. 2004 Eurasper Conference data and author contact data was used for countries that did not have participants at the XI IAS. The separation of the world's asparagus production in the North –South and East-West hemispheres was calculated from the information on production areas.

RESULTS AND DISSCUSSION

In 2005, there were at least 57 asparagus producing countries on six continents with an estimated total production area of 225,095 hectares of which 43 percent were producing white spears and 57 percent producing green spears (Table 1). This is the first time that green spear production area has been greater than white. The 2005 production area is down from the 2001 area by 25,672 ha due mainly to the reductions of areas in China, U.S.A., France, Spain, Greece, South Africa, New Zealand and Australia (Table 2). Data was not available for the countries Ethiopia, Ghana, Kenya, Namibia, Malawi, Western Samoa, Venezuela and Lesotho and are not included in the tables.

Table 2 shows that Asia's production is estimated at 89,840 ha, with China now producing on 80,000 ha. Of Europe's 62,580 ha, the leading country is Germany with 20,000 ha, followed by Spain with 15,000 ha. North America's production is estimated at 37,795 ha with the U.S.A. producing 20,000 ha followed by Mexico with 15,825 ha. Peru is the largest producer in South America's with 18,000 ha, of the 26,450 hectares in South America. South Africa's 2,000 ha and Australia's 4,000 ha lead on their respective continents. Aside from the above countries where production area has reduced, all of the other asparagus producing countries are estimated to have either a stable or increasing production areas (Table 2). These stable and increasing areas are assumed to be due to increased consumption of either white or green asparagus for export or internal markets. In those countries that have reduced their production areas, the reduction has been due to economic pressures of their increasing labor and land costs and/or the increased competition from countries that have lower production costs or that have benefited from the various free trade agreements and the addition of countries into the European Union. China's reduction in area was due to devastating floods in 2003.

Very significant changes in the production of white and green asparagus (Table 3), spear utilization (Table 4), export or domestic consumption (Table 5) has been seen in China and Peru since 1997, these data have been placed in bold type in the tables. As China increased it's share in the European canned white spear market, Peru responded by decreasing their white canned spear production and increased the fresh green spear production for export primarily to the U.S.A. From 1997 to 2005, China has dramatically increased its domestic consumption of asparagus from 1 percent to 45 percent (Table 5) and it's green spear production from 15 to 50 percent (Table3). This has had two significant effects, (1) it has removed a large production of asparagus from the international markets and (2) it has allowed China to increase its production area to meet its domestic demands. Peru, in contrast, has not increased its domestic consumption and is nearly totally dependent on the exportation of its production (Table 5).

There have been increased periods of spear production in Japan and The Netherlands since 2001 (Table 6). Both the early and late extensions of spear production periods have provided growers increased prices and yields for their production with the use of plastic tunnels, green houses and soil applied plastic films or modified Mother Fern production systems.

Literature Cited

Benson, B. L., 1999. World asparagus production areas and periods of production.

Proc. of 9th Int. Asparagus Symp. Ed. B. Benson. Acta Hort. 479: 43-50

Benson, B.L., 2002. Update of the world's asparagus production areas, spear utilization and production periods. Proc. Of 10th Int. Asp. Symp. Ed. A. Uragami. Acta Hort. 589:33-40

Table 1.Estimated World Asparagus Areas in 2005 by Hemispheres and the Percentage of White or
Green Spear Production

			TILUTANLU			
HEMISPHERE	HECTARES	<u>%</u>	<u>WHITE</u>	<u> %</u>	GREEN	<u> %</u>
NORTH	191,995	85%	90,105	47%	101,890	53%
SOUTH	33,100	15%	7,295	22%	25,805	78%
EAST	144,050	63%	79,775	55%	64,275	45%
WEST	81,045	37%	17,625	22%	63,420	78%
TOTAL	225,095	100%	97,400	43%	127,695	57%

HECTARES AND PERCENT OF PRODUCTION

	Change in	AVE. YIELD	Asparad	us Productior	Areas		Change in	AVE. YIELD	Asparagus Production Areas						
COUNTRIES	Area	Kgs./Ha		Hectares		COUNTRIES	Area	Kgs./Ha		Hectares					
	2005	2005	2005	2001	1997		2005	2005	2005	2001	1997				
ASIA						N. AMERICA									
China	up	8,000	80,000	90,000	55,000	Canada (Ont.)	stable	3,000	1,500	1,500	1,250				
India	up	3,500	50	50	10	Costa Rica	stable	3,500	50	20	20				
Indonesia	up	3,000	150	100	100	El Salvador	stable	3,500	50	50	50				
Iran	stable	1,430	700			Guatemala	stable	4,000	100	400	600				
Japan	stable	6,800	3,700	6,700	8,700	Honduras	stable	4,000	20	10	20				
Korea	up	3,000	30	15		Mexico	up	3,700	15,825	15,000	10,000				
Malaysia	stable	4,500	100	200	200	Nicaragua	stable	3,500	210	210	50				
Pakistan	up	10	10			Panama	stable	3,500	40	50	50				
Philippines	up	4,900	2,800	1,200	1,200	U.S.A.	down		20,000	33,500	33,500				
Taiwan	down		100	500	500	California	stable	4,000	9,000						
Thailand	up	15,000	2,200	1,568	2,000	Washington	down	5,000	5,000						
EUROPE						Michigan	stable	2,000	6,000						
Austria	stable	6,000	350	250	250	S. AMERICA									
Belgium	stable	4,600	160	300	200	Argentina	stable	3,780	2,000	2,000	2,000				
Bugaria	stable	5,200	2,300			Brazil	stable		600	600	600				
Cyprus	stable	4,000	250	200		Chile	stable	4,500	4,000	4,200	5,500				
Czech Rep.	up	6,000	180			Colombia	stable	4,700	850	800	800				
Denmark	stable	2,800	70	200	200	Ecuador	up	3,500	400	100	550				
France	stable	3,500	7,000	10,500	12,140	Peru	stable	14,100	18,000	20,000	20,000				
Germany	up	6,000	20,000	14,500	12,000	Uruguay	up	4,000	600	600	600				
Greece	down	6,000	4,500	6,000	6,000	AFRICA									
Hungary	up	5,000	1,000	500	500	Egypt	up	4,000	500	50	50				
Israel	up	3,800	25	150	150	Morocco	stable	?	600	100	100				
Italy	stable	5,300	6,700	6,000	6,300	South Africa	down	3,500	2,000	2,500	3,500				
Netherlands	stable	8,000	2,350	2,275	2,300	Tunisia	stable	3,500	80	100	60				
Norway	up	3,500	20			Zimbabwe	down	4,000	50		650				
Poland	up	3,000	1,000	1,500	1,000	AUSTRALIAN	AREA								
Portugal	stable	4,200	200	200	200	Australia	stable	5,000	4,000	4,500	4,500				
Romania	stable	4,00	50	50	50	New Zealand	down	3,700	1,200	2,500	2,500				
Slovakia	up	6,000	45	30	20	<u>P</u> _									
Slovinia	up	6,000	250												
Spain	stable	4,500	15,000	17,000	20,200										
Switzerland	down		100	200	200										
Turkey	up	4,200	30	50	50										
United King.	up	3,000	1,000	900	750										

Table 3. Per	2005	-	20	01	19	97		2005		20	01	1997		
COUNTRIES	WHITE	GREEN	WHITE	GREEN	WHITE	GREEN	COUNTRIES	WHITE	GREEN	WHITE	GREEN	WHITE	GREEN	
ASIA	<u></u>		<u></u>		<u></u>		N. AMERICA			<u></u>		<u></u>		
China	50	50	70	30	85	15	Canada (Ont.	1	99	1	99	1	99	
India	90	10	90	10			Costa Rica	0	100	0	100	0	100	
Indonesia	10	90	10	90			El Salvador	0	100	0	100	0	100	
Iran	-						Guatemala	0	100	3	97	3	97	
Japan	1	99	3	97	3	97	Honduras	0	100	0	100	0	100	
Korea	0	100	-	-	-		Mexico	0	100	2	98	2	98	
Malaysia	0	100					Nicaragua	0	100	0	100	0	100	
Pakistan	0	100					Panama	0	100	0	100	0	100	
Philippines	0	100	0	100	0	100	U.S.A.	0	100	0	100	0	100	
Taiwan	95	5	95	5	95	5	California	0	100	0	100	0	100	
Thailand	0	100	0	100	0	100	Washington	0	100	0	100	0	100	
EUROPE							Michigan	0	100	0	100	0	100	
Austria	97	3	95	5	95	5	S. AMERICA							
Belgium	98	2	99	1	90	10	Argentina	30	70	50	50	50	50	
Bulgaria	100	0					Brazil	80	20	80	20			
Cyprus	100	0	100	0	100	0	Chile	0	100	1	99	1	99	
Czech Rep.	100	0					Colombia	0	100	60	40	60	40	
Denmark	100	0					Ecuador	0	100	10	90	60	40	
France	85	15	95	5	95	5	Peru	30	70	50	50	65	35	
Germany	96	4	98	2	98	2	Uruguay			0	100	0	100	
Greece	99	1	95	5	95	5	AFRICA							
Hungary	99	1	100	0	100	0	Egypt	2	98	20	80	20	80	
Israel							Morocco	75	25					
Italy	15	85	15	85	30	70	South Africa	30	70	85	15	90	10	
Netherlands	97	3	98	2	98	2	Tunisia			50	50	50	50	
Norway	0	100					Zimbabwe					0	100	
Poland	95	5	100	0	100	0	AUSTRALIAN	AREA						
Portugal	90	10	90	10	90	10	Australia	5	95	0	100	0	100	
Romania	100	0	100	0	100	0	New Zealnd	0	100	0	100	0	100	
Slovakia	100	0												
Slovinia	40	60												
Spain	70	30	80	20	90	10								
Switzerland	35	65	35	65	35	65								
Turkey	50	50												
United King.	0	100	0	100	0	100								

		2005			2001			1997			2005				2001			1997	
COUNTRIES	FRESH	CAN	FROZ	FRESH	CAN	FROZ	FRESH	CAN	FROZ	COUNTRIES	FRESH	CAN	FROZ	FRESH	CAN	FROZ	FRESH	CAN	FROZ
ASIA										N. AMERICA									
China	38	30	32	25	55	20	1	90	9	Canada (Ont.)	100	0	0	88	12	0			
India	100	0	0	5	95	0				Costa Rica	100	0	0	100	0	0	100	0	0
Indonesia	100	0	0	100	0	0	100	0	0	El Salvador	100	0	0	100	0	0	100	0	0
Iran	100	0	0							Guatemala	100	0	0	100	0	0	100	0	0
Japan	100	0	0	97	3	0	90	10	0	Honduras	100	0	0	100	0	0	100	0	0
Korea	100	0	0							Mexico	100	0	0	90	0	10	90	0	10
Malaysia	100	0	0	100	0	0	100	0	0	Nicaragua	100	0	0	100	0	0	100	0	0
Pakistan	100	0	0							Panama	100	0	0	100	0	0	100	0	0
Philippines	100	0	0	100	0	0	100	0	0	U.S.A.				45	50	5	50	40	10
Taiwan										California	100	0	0	99	1	0	99	1	0
Thailand	100	0	0	98	2	0				Washington	65	30	5						
EUROPE										Michigan	20	40	40						
Austria	100	0	0		0	0	100	0	0	S. AMERICA									
Belgium	100	0	0		2	0				Argentina	65	20	15	70	30	0	70	30	0
Bulgaria	100	0	0							Brazil							No Data		
Cyprus	100	0	0		0	0	100	0	0	Chile	25	0	75	50	0	50	35	10	55
Czech Rep.	100	0	0		0	0	100	0	0	Colombia				30	70	0	30	70	10
Denmark	100	0	0		0	0	100	0	0	Ecuador	100	0	0	90	10	0	90	10	0
France	100	0	0		0	0	100	0	0	Peru	60	30	10	45	50	5	35	60	5
Germany	99	0	1		0	0	100	0	0	Uruguay				80	0	20	80	0	20
Greece	100	0	0		0	0	100	0	0	AFRICA									
Hungary	100	0	0		0	0	100	0	0	Egypt	100	0	0	100	0	0			
Israel	100	0	0							Morocco	100	0	0	100	0	0			
Italy	99	0	1		0	0	100	0	0	South Africa	55	45	0	33	67	0			
Netherlands	100	0	0		0	0	100	0	0	Tunisia	100	0	0	100	0	0			
Norway	100	0	0							Zimbabwe							100	0	0
Poland	90	9	1		10	0	90	0	0	AUSTRALIAN	AREA								
Portugal	100	0	0		0	0	100	0	0	Australia	95	5	0	90	10	0			
Romania	100	0	0		0	0	100	0	0	New Zealand	40	55	5	35	50	15			
Slovakia	100	0	0											İ					
Slovinia	100	0	0																
Spain	70	20	10		5	5	90	5	5										
Switzerland	100	0	0		0	0	100	0	0										
Turkey	100	0	0																
United King.	100	0	0		0	0	100	0	0										1

	20	05	20	01	19	97		20)05	20)01	1997	
COUNTRIES	Export	Dom.	Export	Dom.	Export	Dom.	COUNTRIES	Export		Export	Dom.	Export	Dom.
ASIA		-		-		_	N. AMERICA				-		
China	55	45	65	35	99	1	Canada (Ont.)	10	90	0	100		
India	0	100	0	100			Costa Rica	50	50	95	5	95	5
Indonesia	25	75	0	100	1	99	El Salvador	100	0	100	0	100	0
Iran							Guatemala	95	5				
Japan	1	99	0	100	50	50	Honduras	100	0				1
Korea	0	100					Mexico	95	5	95	5	95	5
Malaysia	0	100	0	100	0	100	Nicaragua	100	5				1
Pakistan	0	100					Panama	0	100				1
Philippines	98	2	99	1	99	1	U.S.A.			20	80	20	80
Taiwan							California						
Thailand	70	30	65	35	65	35	Washington	6	94				
EUROPE							Michigan	0	100				1
Austria	5	95	0	100	0	100	S. AMERICA						
Belgium	6	94	20	80			Argentina	50	50	60	40	60	40
Bulgaria							Brazil	0	100	0	100	0	100
Cyprus	50	50					Chile	70	30	70	30	80	20
Czech Rep.	100	0					Colombia	90	10	90	10	90	10
Denmark	0	100					Ecuador	100	0	100	0	100	0
France	10	90	20	80	20	80	Peru	99	1	99	1	99	1
Germany	1	99	20	80	20	80	Uruguay			20	80	20	80
Greece	95	5	90	10	90	10	AFRICA						
Hungary	80	20	90	10	90	10	Egypt	80	20	95	5	95	5
Israel	0	100					Morocco	98	2	100	0	100	0
Italy	5	95	5	95	5	95	South Africa	60	40	85	15	85	15
Netherlands	40	60	80	20	80	20	Tunisia	80	20				
Norway	0	100					Zimbabwe					90	10
Poland	67	33	50	50	50	50	AUSTRALIAN AF	REA					
Portugal	80	20					Australia	70	30	60	40	60	40
Romania	0	100	0	100	Ī		New Zealand	50	50	50	50	25	75
Slovakia	100	0	I		Ī								<u> </u>
Slovinia	0	100											1
Spain	30	70	50	50									1
Switzerland	9	91	0	100	0	100							1
Turkey	0	100	0	100	-				1		1	1	1
United Kingdom	0	100	0	100	0	100			1				1

Table 6. P	Periods	of Spe	ar Prod	luction	in Aspa	aragus	Produc	ing Co	untries																
COUNTRIES	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	COUNTRIES	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
ASIA													N. AMERICA												
China		XX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXX		Х	XXXXXX	ΧХ		Canada (Ont.					XXXXXX	хххх						
India			XXXXXX										Costa Rica		xxxxxx										
Indonesia	XXXXXX										XXXXXX	XXXXXX	El Salvador					XXXXXX							
Iran			ХХХ	XXXXXX	XXXXXX	xx							Guatemala					XXXXXX							
Japan	XXXXXX	XXXXXX	XXXXXX	XXXXXX	ххххх	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	Х	XXXXXX	Honduras	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	ххххх	xxxxxx	XXXXXX	ххххх	XXXXXX	XXXXXX	XXXXXX
Korea			ХХ	XXXXXX	XXXXXX	XXXXXX							Mexico	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX						
Malaysia	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	Nicaragua	XXXXXX											
Pakistan				XXXXXX	XXXXXX	XXXXXX							Panama	XXXXXX								XXXXXX	XXXXXX	XXXXXX	XXXXXX
Philippines	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	U.S.A.	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XX					
Taiwan				XXXXXX	XXXXXX	XXXXXX		XXXXXX	XXXXXX	XXXXXX			California	XXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXX						
Thailand	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	Washington				XXXXXX	XXXXXX	XXXXXX						
EUROPE													Michigan				XX	XXXXXX	XXXXXX	XX					
Austria				XXX	XXXXXX	ХХХ							S. AMERICA												
Belgium				XXX	XXXXXX	XXX							Argentina								XXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
Bulgaria			XXX	XXXXXX	XXXXXX	XXXX							Brazil	XXXXXX	XXXXXX	XXXXXX								XXXXXX	XXXXXX
Cyprus			XXX	XXXXXX	XXXXXX	XXX							Chile										XXXXXX		
Czech Rep.				XXXXXX	XXXXXX	XXXXXX	XX						Colombia	XXXXXX											
Denmark					XXXXXX	XXXXXX	XXX						Ecuador	XXXXXX						XXXXXX	XXXXXX				XXXXXX
France			XXXX	XXXXXX	XXXXXX	XXXXXX							Peru	XXXXXX											
Germany				XXXXXX	XXXXXX	XXXXXX							Uruguay									XXXXXX	XXXXXX	XXXXXX	XXX
Greece		XX	XXXXXX	XXXXXX	XXXXXX	ΧХ							AFRICA												
Hungary				XXXXXX	XXXXXX	XX							Egypt	XXXXXX	XXXXXX	XXXXXX									
Israel			XXX	XXXXXX	XXXXXX	ххх							Morocco	XX	XXXXXX	XXXXXX	ХХХ								
Italy		XXXXXX	XXXXXX	XXXXXX	XXXXXX	х							South Africa									XXXXXX	XXXXXX	XXXXXX	
Netherlands	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	ΧХ							Tunisia	XX	XXXXXX	XXXXXX	ХХХ								
Norway				ХХ	XXXXXX	XXXX									XXXXXX						XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
Poland				XXX	XXXXXX	XXXX							AUSTRALIA	N AREA	٩										
Portugal				XXXXXX									Australia		XXXXXX	XXXXXX			ХХХ				XXXXXX		
Romania			XX	XXXXXX	XXXXXX	XXXXXX							 New Zealand	XXXXXX						XXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
Slovakia				XXX	ххххх	XXXXXX																			
Slovenia				XXXXXX	ххххх	ХХ																			
Spain	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	Х																		
Switzerland				XXXXXX	ххххх																				
Turkey				XXXXXX	XXXXXX	XXXXXX																			
United King.				XXXXXX	ххххх	XXXXXX																			