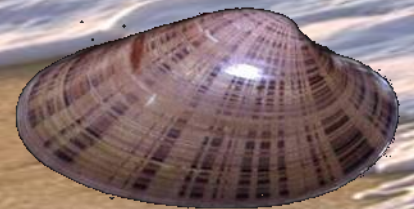


# Eliminating Barriers to Commercial Production of Sunray Venus Clams in Florida:

## Determination of Wholesale Market- related Product Attributes

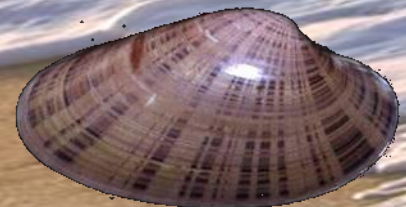
**Chuck Adams**

*Food and Resource Economics Dept.  
Florida Sea Grant Program*



# Sunray Venus Clam: A New Species to Diversify the Florida Hard Clam Aquaculture Industry

- Funded by Florida Sea Grant, L/LR-A-44, **2006-8**
  - John Scarpa, Harbor Branch Oceanographic Institute at FAU
  - Leslie Sturmer, UF IFAS Cooperative Extension Service
  - LeRoy Creswell, UF Florida Sea Grant
  - Jose Nunez, UF The Whitney Lab
  - **Chuck Adams, UF IFAS Food and Resource Economics**



# Tested Market Perception of Cultured Sunray Venus Clams at Restaurants

- Shellstock provided to 4 restaurants
  - Ave. 2.5" SL, 0.9" SW, 33 g TWt (14/lb)
- Chefs chose preparation method – all cooked
- 239 surveys completed by patrons
  - Detect grittiness? **No-89%**
  - Would you order product again? **Yes-94%**
  - Would you recommend product? **Yes-97%**



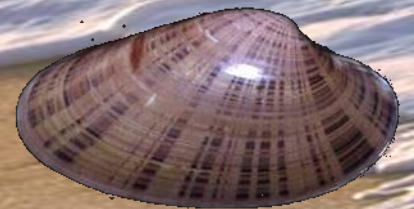
Overall Excellent  
and Very Good  
attribute ratings  
**(90%)** by  
consumers,  
chefs, and  
managers

## Attribute Ratings

	Excellent	Very Good	Good	Fair	Poor
	. . . . % of all respondents for each attribute . . . .				
Appearance	84	13	2	1	0
Taste	72	18	8	2	0
Texture	63	25	9	2	1
Tenderness	58	25	9	4	2
Value	61	24	10	4	1
Overall	70	20	8	2	0

# Species Diversification in FL Aquaculture: Nursery and Growout of the Sunray Venus Clam

- Funded by Florida Sea Grant, L/LR-A-45, **2008-10**
  - John Scarpa, Harbor Branch Oceanographic Institute at FAU
  - Leslie Sturmer, UF IFAS Cooperative Extension Service
  - LeRoy Creswell, UF Florida Sea Grant
  - **Chuck Adams, UF IFAS Food and Resource Economics**





# Tested Market Perception of Cultured Sunray Venus Clams at Sushi Restaurants

- Shellstock provided to 4 sushi restaurants
  - Ave. 2.7" SL, 1.1" SW, 42 g TWt (11/lb)
- Served raw – sushi, sashimi, sevice, half-shell
- 101 surveys completed by patrons
  - Detect grittiness? **No-81%**
  - Would you order product again? **Yes-83%**
  - Would you recommend product? **Yes-91%**



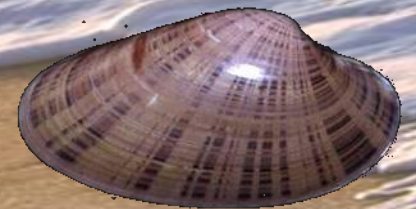
## Attribute Ratings

Overall Excellent  
and Very Good  
attribute ratings  
(76%) by  
consumers,  
chefs, and  
managers

	Excellent	Very Good	Good, Fair, Poor
	. . . . % of all respondents for each attribute . . . .		
<b>Appearance</b>	60	24	16
<b>Taste</b>	44	31	25
<b>Texture</b>	45	25	30
<b>Tenderness</b>	43	32	25
<b>Value</b>	53	20	27
<b>Size</b>	40	29	31
<b>Color</b>	56	24	20
<b>Overall</b>	43	33	24
<i>Non-Asian consumers</i>	51	30	19
<i>Asian consumers</i>	32	27	32

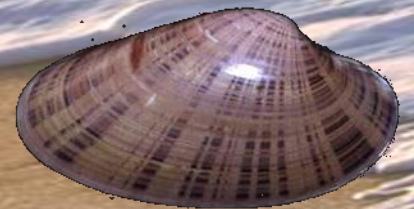
# Eliminating Barriers to Commercial Production of Sunray Venus Clams in Florida

- Funded by Florida Sea Grant, L/LR-A-46, **2010-12**
  - John Scarpa, Harbor Branch Oceanographic Institute at FAU
  - Leslie Sturmer, UF IFAS Cooperative Extension Service
  - **Chuck Adams, UF IFAS Food and Resource Economics**
  - **Steve Otwell, UF IFAS Food Science and Human Nutrition**
  - Rex Ellis, UF IFAS Soil and Water Science
  - Todd Osborne, UF IFAS Soil and Water Science
  - Mark Clark, UF IFAS Soil and Water Science



# Rational and Objectives

- Determining product attributes in the wholesale distribution system will help guide the development of local, regional, and national markets.
  - Define the sensory and nutritional profiles of cultured sunray venus clams.
  - Examine product attributes of sunray venus with respect to wholesale market and product distribution standards for molluscan shellfish.



# Determining the Sensory and Nutritional Profiles of Cultured Sunray Venus Clams



- Conducted at the UF Aquatic Food Products Lab
- Trained seafood sensory panel

## Sensory Profile:

Attribute	Profile
Appearance	Very plump, fully covered clams, predominantly light color meat. Attractive external shell, peach to orange color tones.
Aroma	Moderate briny and metallic aroma
Basic Flavors	Salty, with moderate umami
Flavor and Aftertastes	Seaweed was the predominant flavor accompanied by strong metallic.
Textures	Firm texture

## Nutrition Facts

Serving Size 4 oz (113g)  
Servings Per Container

Amount Per Serving

**Calories 45**      **Calories from Fat 5**

% Daily Value\*

**Total Fat 0.5g**      **1%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol 20mg**      **7%**

**Sodium 640mg**      **27%**

**Total Carbohydrate 2g**      **1%**

Dietary Fiber 0g      **0%**

Sugars 0g

**Protein 8g**

Vitamin A 8%      • Vitamin C 2%

Calcium 10%      • Iron 30%

Vitamin B12 40%      • Zinc 6%

Copper 4%

\*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:  
Fat 9 • Carbohydrate 4 • Protein 4

Low-fat source of protein  
Low cholesterol  
High in minerals and vitamins



# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish



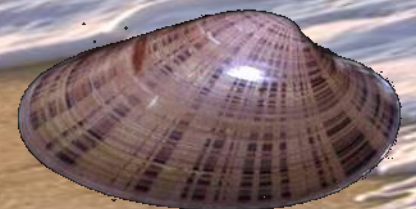
- Shellfish wholesale dealers (n=33) were sent
  - Informational fact sheets
  - Samples of cultured sunray venus clams
  - Product attribute survey
- Survey responses compiled to provide information on
  - Appearance
  - Condition
  - Shelf life
  - Size preference
  - Sensory attributes
  - Handling methods
  - Volume/frequency for future orders
  - Potential pricing



# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish

## ○ Survey Results: *Who was Surveyed?*

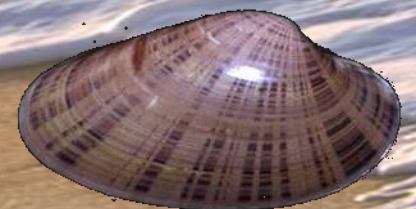
- \* **Type:** Dist'r (74%)      Retl'r (17%)      Rst/Brkr/Othr (9%)
- \* **Region:** SE (49%)      WC (24%)      NE (15%)      M Atl (12%)
- \* **Sales:** ≥\$10M (53%)      \$10-5M (7%)      < \$1M (40%)
- \* **% Sales:** Moll (38%)      Crus (38%)      Finfish (33%)      Othr (14%)
  
- \* **Importance of mollusks in product line ...** 1 (yes) → 5 (no)  
Oysters (2.17)    Clams (2.28)    Scllps (2.48)    Mssls (2.96)    Other (4.35)
- \* **Condition of product upon arrival ...** 1 (poor) → 10 (good) ... 9.2 ave



# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish

## ○ Survey Results: *Observations* (1 bad ... 8 good)

- \* **Shell Appearance:** 7.3
- \* **Meat Color:** 7.1
- \* **Taste:** Raw (5.4) Cooked (6.6)
- \* **Texture:** 5.1
  
- \* **Detection of grit?** No (50%) Some (47%) Excessive (3%)
- \* **Notice shell color change?** Yes (75%) No (25%)





# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish

## ○ Survey Results:

### \* Meat Yield Description:

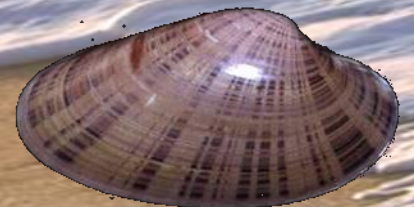
*As Expected (56%)      More ... (44%)      Less ... (0%)*

### \* Shell thickness:

*Just right (71%) Thin (20%)      Thick (9%)*

### \* Shelf Life:

*Acceptable (90%)      Unacceptable (10%)*





# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish

## ○ Survey Results:

\* **Size Preference?** 15/16", 7/8", 13/16", 3/4" (SW)

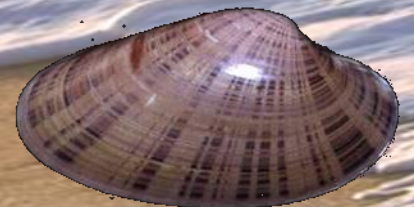
*No strong preference for size other than that shipped*

*But ... may vary by type of buyer ... region of country*

\* **Potential Market Demand?** 88% ... "could sell" or "high"

\* **Attributes to Market -** Taste (27%) Shell app. (22%) Yield (15%)  
Meat Color (12%) Texture (11%)

\* **Price "willing" to pay?** \$0.183 ... delivered to place of business





Chuck Adams (above), Leslie Sturmer and John Stevely (right) interviewed over 250 buyers at the *Fresh from Florida* Pavilion during the 2011 International Boston Seafood Show.



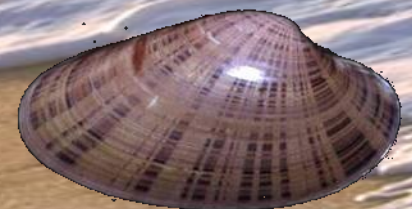
Chef Peter Stefani (above) of The Island Room in Cedar Key served sunray venus clams to thousands of attendees.

# Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish

## ○ Survey Results: 239 completed surveys

Broker (4), Dl'r/Dst'r (115), Rst (23), Rtl'r (14), Public (70)

<b>Favorably Rated?</b>	Yes (205)	No (2)	
<b>Standout Attributes?</b>	Taste (179)	Texture (132)	
Shell Appearance (80)	Grit (38)	Meat Color (37)	
<b>Purchase?</b>	Yes (192)	No (5)	NR (42)





# **Examining Product Attributes of Sunray Venus Clams with Respect to Wholesale Market Standards for Molluscan Shellfish**

**“This is something different”**

**“Great flavor ... nice!”**

**“Clean, no grit”**

**“Sweet ... different”**

**“Delicious ... high end, guys!”**

**“Meaty for a clam”**

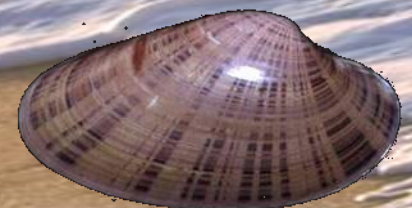
**“Will sell like hotcakes”**

**“Will buy now!”**

**“You’s guys are gonna kill us”**

**“Target upper end of market”**

**“Very marketable”**





# Summary / Recommendations?

- Latent market exists
- How to position in market? Pricing?
- Fine tune ... shipping methods, shelf life characteristics, storage
- Market segmentation (by size, market sector, product form)

