Report of Gear Trials

conducted by

Fisheries Division, Ministry of Agriculture, Land and Marine Resources (MALMR)

in collaboration with

National Fisheries Institute (INP), Mexico

PROJECT EP/GLO/201/GEF

"Reduction of Environmental Impact from Tropical Shrimp Trawling, through the Implementation of Bycatch Reduction Technologies and Change of Management."

May 21 – 31, 2007

Suzuette Soomai, National Co-ordinator, Trinidad and Tobago

1 INTRODUCTION

The Fisheries Division conducted a second programme of gear trials over the period 21 May – 1 June 2007. The first such exercise was conducted over the period 13 – 25 November 2006. This was one of the project activities for Trinidad and Tobago under the FAO global Project EP/GLO/201/GEF "Reduction of Environmental Impact from Tropical Shrimp Trawling, through the Implementation of Bycatch Reduction Technologies and Change of Management". These gear trials involved the testing/demonstration of bycatch reduction devices (BRDs) and/or modified trawl gear aimed at reducing the level of discards of bycatch caught in the shrimp trawl fishery.

Over the period 21 May – 1 June 2007, gear trials were conducted in the artisanal, semi-industrial and industrial trawl fleets. The schedule of activities involving gear trials and meetings with key stakeholders is attached in **Appendix 1**. Technical assistance for the activities over the two-week period was provided by Mr Andres Seefoo, a Gear Technologist from the National Fisheries Institute (INP), Mexico. In the second week, technical assistance was also provided by Mr Thomas Moth-Poulsen, the Project Coordinator, FAO Rome. Mr Jose Alio, a Researcher from the National Institute of Agricultural Research (INIA), Venezuela, also participated in the gear trials in Trinidad and Tobago in the second week. Personnel from the Fisheries Division,

namely Ms Suzuette Soomai, Fisheries Officer and the National Co-ordinator for the Project, and Mr Colin Asgarali, Checker/Biological Data Collection Supervisor, worked with Mr Seefoo over the period. The gear trials were conducted in collaboration with the trawl industry and involved the use of trawlers belonging to fishermen and vessel owners representing the different trawl fleets and who are members of the National Steering Committee for the Project. **Appendix 2** gives a list of the names of personnel who participated in the two-week programme.

These gear trials continued the work that was initiated in the first schedule of gear trials which were conducted last year over the period 13 - 25 November, 2006 when the Fisheries Division in collaboration with Mr Seefoo worked with two artisanal trawl fishermen, based at Otaheite, to build and test a modified artisanal trawl net aimed at reducing the levels of bycatch. At sea trips onboard the semi-industrial and industrial trawlers were also conducted to observe their operations in preparation for the testing of appropriate bycatch reduction gears on these vessels in 2007.

The gear trials over the period 21 – 31 May 2007 focused on testing the fisheye BRD and square mesh panel and making the necessary modifications to the existing nets. These two devices were tested in the artisanal and industrial fleets. The fish eye alone was tested in the semi-industrial fleets and these vessels use the same design of nets as the industrial fleet.

2   DESCRIPTION OF GEAR TRIALS

The section gives a general description of the operations of the individual trawl fleets and the methodology used in the gear trails. The results given are considered preliminary and intended to serve as a general overview of the outcome of the trials. A more detailed technical analysis of the species composition data that was collected from each fleet will be analysed and included in the detailed technical report which will present the analysis and conclusions from data-collection surveys regarding the actual catches, by-catch and discards according to season and fishing zone and by fleet type as outlined in the LOA for Trinidad and Tobago. Appendix 3 gives a summary of the catch weights by haul for the artisanal, semi-industrial and industrial fleet.

2.1   Artisanal Trawl Fleet

BACKGROUND & METHODOLOGY
The gear trials were conducted using two vessels in the artisanal trawl fleet operating out of Otaheite, a landing site on the southern part of the Gulf of Paria, the major trawling area. The

artisanal fleet operating out of this site targets mainly *Litopenaeus schmitti* and *Xiphopenaeus kroyerii*, although the presence of other species such as *F. notialis* and *F. subtilis* was observed.

In the artisanal fleet, the focus at this time was to continue work that was initiated in November 2006 when tests were conducted with two artisanal trawl fishermen, Mr Mooniraj Kassie and Mr Sooklal Gajadhar from Otaheite. In November 2006 a double foot rope was introduced into the design of the traditional artisanal trawl net that was currently in use by the fleet. The second foot rope was made of chain and was separated from the main foot rope by nylon twine strings. The control net was the net currently in use by the fleet and consists of a flat trawl net with a head rope length of 34 feet and mesh size of 1 ¼ inches. In addition, after the initial test, steel triangles were used to obtain the desired separation along the whole length of both foot ropes. It was recommended that a larger cod end should be used in order to be able to incorporate a fish eye BRD.

In May 2007, following on this recommendation and working with the same fishing vessels, a fisheye was installed in a balloon trawl net and was placed between the last panel of the trawl body and the codend. Separate experiments were conducted using a square mesh panel in place of the fisheye.

Tows were made using two boats, one carrying the experimental gear and the other carrying the control net:

- Net 1: Balloon trawl net with a head rope length of 34 feet and mesh size of 1 ½ inches.
- Net 2: Flat trawl net with a head rope length of 34 feet and mesh size of 1 ¼ inches (this net was always used as the control net)

Trawl doors made of wood and steel and of similar size, weight and hydrodynamic behavior were used in all of the trials that were conducted.

Paired tows were not conducted since the trawlers operate at very shallow depths (an average of 1.4 m) and this would have resulted in steering difficulties during the hauls.

After several test hauls of the gear a total of 5 hauls with each trawl system utilizing the fish eye and 3 hauls utilizing the square mesh were made in the same fishing grounds. The duration of each set varied from 1.5 to 2 hours and was made at an average depth of 1.4 m and towing speed from 2.5 to 3.2 knots. Other artisanal boats working in the same area trawled generally at the same depth. For each trawl haul, the weight of the total catch, retained shrimp, retained fish and weight of discards were recorded. The species compositions of retained shrimp and retained fish

were recorded and a sample of the discards was sorted and the species composition was recorded.

RESULTS

Total catches ranged between 30 and 150 lbs, with an average catch of 66 lbs in the experimental net and 97 lbs in the control net. Retained shrimp averaged 5 lbs in the experimental net and 9 lbs in the control. On average, 80% of the total catch was discarded. The species composition of the catch was generally the same in both the experimental and control net. Overall, preliminary analysis of the data collected was inconclusive in determining the effectiveness of the fish eye and the square mesh panel in terms of bycatch reduction In some hauls, the experimental nets using both bycatch reduction devices gave an expected reduction in shrimp catches along with a reduction in discards however in some hauls the weight of the bycatch in the experimental net and in control net was almost the same. The shrimp catch in the experimental net however weighed on average 50% less than weight of shrimp in the control net. The level of retained fish did not increase in the experimental net compared with the control net.

2.2   Semi-Industrial Trawl Fleet

The semi-industrial trawl fleet targets *Farfantepenaeus notialis* and *F. subtilis*. Paired trawl gear trials were made using two vessels, "CRYSTAL" and "VALLEY FRESH", which operated in the north part of the Gulf of Paria between Port of Spain and Orange Valley.

The main characteristics of the trawl system were:

- Head rope length : 34 feet
- Foot rope length : 38 feet
- Tickle chain length: 35 feet
- Mesh size : 1 ¾ inch
- Otter boards were made of wood and steel, 6 feet long and 34 inches high, with an angle of attack of approximately 24° degrees
- Bridles were 20 fathoms long and made of 7/16 inch diameter steel wire.

In order to install the fisheye in the experimental net, a netting extension of 30 by 100 meshes of 1 5/8 inches was prepared and was inserted between the last panel of the trawl body and the codend. Also, a second foot rope made of chain was installed in the experimental net and was separated from the main foot rope by nylon twine strings 8 inches long.

Three sets were made with Fish Eye and Double Foot Rope, another three were made only with the fish eye.

Trawling depth during the hauls ranged from 6 to 9 fathoms, in the vicinity of Orange Valley in the Gulf of Paria. Trawling time was on average three hours per haul at a towing speed of 3.0 knots. It was observed that the semi-industrial and industrial vessels share the same fishing grounds as well.

RESULTS

In Appendix 3 only data for hauls 5 and 6 are presented. Average total catch was estimated at 175 lbs in the experimental net and 275 lbs in the control net. It was estimated that 66 % of the bycatch was discarded from the control net and 50% was discarded from the experimental net. Average shrimp catches in the control net were estimated at 32 lbs, and 40.5 lbs in the experimental net, with commercial by-catch averaging 62 lbs for both nets. The species composition was generally the same in the both the experimental and control nets. The data collected was insufficient to determine the effectiveness of the fisheye in bycatch reduction. The double foot rope was discontinued in the last 3 hauls since it was stirring up too much sediment which was indicative of the high quantities of starfish in the catch. This may also be due to the fact that trawls were being operated in too shallow an area.

2.3   Industrial Trawl Fleet

The Industrial fleet also targets *Farfantepenaeus notialis* and *F. subtilis*. The sea trial were conducted onboard the industrial trawler the "PRAIRIE SCHOONER" between Orange Valley and Point Lisas in the Gulf of Paria.

The industrial trawl fishing gear and its rigging (otter boards, bridles, tickle chain) was slightly bigger in dimensions of that used by the semi-industrial vessels, except in the case of the former, because of the outriggers, two equal nets are towed at each side.

Trawling depth during the hauls ranged from 3 to 8 fathoms; trawling time was on average three hours per set.

The same fish eye and netting extension used in the semi-industrial trawler was installed in the starboard trawl net. Four hauls were made.

A square mesh panel was inserted in a netting extension of 30 by 120 meshes of 1 5/8 inches (see Fig X) and was installed also in the starboard trawl net. Two hauls were made.

Due to the difference in catches and operational dimensions observed between the trawls, the square mesh panel was also tested in the port side trawl net during two sets.

RESULTS

Average total catch was estimated at 226 lbs in the experimental net and 332 lbs in the control net. In the control net the average retained shrimp per set was estimated at 20 lbs, commercial by-catch at 24 lbs and discards at 288 lbs. In the experimental net average retained shrimp and retained commercial bycatch per set was estimated at 14 lbs each, and discards at 199 lbs. It was estimated that 90 % of the bycatch was discarded from both the control net and from the experimental net. Overall the data was unable to provide a definite indication that the BRD was effective in reducing discarded bycatch.

3 MEETINGS WITH STAKEHOLDERS

Meetings with the Director of Fisheries, Ministry of Agriculture, Land and Marine Resources (MALMR), the Permanent Secretary, MALMR, and the FAO Representative for Trinidad and Tobago, Guyana and Suriname.

The team involved in the gear trials consisting of Ms Suzette Soomai (Fisheries Officer/National Co-ordinator of the Project), Mr Colin Asgaralli (Checker/Biological Data Supervisor), Mr Jose Alio (Researcher, Venezuela), Mr Andres Seefoo (Gear Technologist, Mexico), and Mr Thomas Poulsen (Project Coordinator, FAO, Rome) met with Ms Ann Marie Jobity, Director of Fisheries, to update her on the progress of work under the Project and specifically with regard to the gear trials in Trinidad and Tobago. She was also briefed on similar work in Venezuela. It was noted that there should be continued collaboration with Venezuela in gear testing in the Gulf of Paria and Columbus Channel. The future of the work under the Project was discussed and it was recommended that for continuity after the end of the Project, gear testing activities as well as the collaboration with Venezuela and Mexico on these activities should be included under the Division's Development Programme Vote #508.

Ms Soomai, Mr Moth-Poulsen, Mr Seefoo and Mr Alio met with the Permanent Secretary of the Ministry of Agriculture, Land and Marine Resources, Ms Phillipa Forde, to update her on the Project. With regard to continuity of gear testing after the end of the Project, Ms Forde recommended that technical assistance can be sought from Mexico under the Technical Co-operation Agreement signed between the Republic of Trinidad and Tobago and Mexico. The

Permanent Secretary also stressed the importance of sharing the lessons learnt under the Project with the other CARICOM (Caribbean Community) countries. This is in light of the mandate under the Treaty of Chaguaramas which seeks to create a single market and economy within the CARICOM region for free movement of resources and people within the region. She also highlighted the important role that Trinidad and Tobago plays with regard to providing guidance to other CARICOM countries in the light of greater access to resources by this country.

The same group also met with the FAO Representative for Trinidad and Tobago, Guyana and Suriname, Ms Florita Kentish. Ms Kentish was updated on the progress of the study and activities in Trinidad and Tobago, Venezuela and Mexico. Ms Kentish asked whether any studies were being conducted to determine the effect of pollution on fish stocks and the environment. In response it was discussed that the Fisheries Division does not have the capability to perform quantitative tests on pollution levels and its effects on the natural resources, however a study is currently in progress which aims to describe the sources and nature of pollution and the poterntial impacts on the fisheries. With regard to the level of fish stocks in the region it was noted that the technical capacity in the region to do stock assessment is decreasing due to staff changes in the Fisheries Departments within the region and a request was made for FAO to assist with the coordination of future stock assessment training workshops within the region.

The meeting to present results to the Fisheries Division and National Steering Committee, was held at the Fisheries Division's Head Office and was chaired by Ms Ann Marie Jobity, Director of Fisheries. Ms Soomai gave a general introduction to the Project and described Trinidad and Tobago's work programme and the gear trials, Mr Poulsen gave an overview of the global project and described examples of BRDs and their use in other countries under the Project. He also described technical details from the gear trials. Mr Seefoo spoke of Mexico's involvement in the Project with regard to gear development and BRDs. Mr Alio gave an overview of research work done with BRDs in Venezuela. In the ensuing discussions with the members of the audience, the following were the main points that were highlighted:

1.   The need for the fishing industry and the Fisheries Administration to work together to safeguard the future of the shrimp fishery.

2.   The need for incidental turtle catches to be taken seriously and prevented through the use of TEDs.

3.   A TED and finfish BRD can be used together however in this case the finfish BRD must be a simple design such as the fisheye.

4. The regulations outlining gear specifications are over 20 years old and the current trawl gear needs to be modified. New amendments for specifications for the cod end, chafing gear, the trawl net body, mesh size and otter board need to be made in collaboration with the fishing industry to make gear more efficient in terms of fuel consumption and operation and to reduce negative impacts on the environment.

5. The Mexican prototype net that will be received by Trinidad and Tobago shortly will be tested and will be used to eliminate the biases of the nets used in the May 2007 trials due to structural variations between the nets used with the test BRD and the control net.

6. Other management options such as the establishment closed seasons and designated nursery areas must be given priority given the high level of discards particularly form the industrial trawls. The fishing industry needs to be an integral part of the supporting research and monitoring.

7. The high discard levels put the fishing industry at risk of being the target of "green' groups and local fishers need to start being part of research and more environmentally friendly practices otherwise they are making themselves vulnerable to attack and closure. Fishers need to be responsible for their role in contributing to reduction of resources.

4 GENERAL RECOMMENDATIONS / FUTURE WORK

Specific recommendations were made for each of the three trawl fleets. General recommendations applying to all trawling were also made and many of these were previously made after the November 2006 gear trials and are still applicable and are presented below.

4.1 Specific Recommendations

ARTISANAL FLEET

Consideration needs to be given to other management measures such as enforcing areas of operation as prescribed under the regulations, since the artisanal fleet is operating in very shallow waters. Movement to deeper waters is expected to reduce the catch of juveniles, in the absence of a BRD.

A BRD (either a fish eye or a square mesh panel) and double foot rope (when possible) should be used when targeting shrimp in deeper waters.

A net will be constructed in Mexico based on the results of the tests conducted on the artisanal fleet, and will be sent to Trinidad during June 2007 for continued testing at deeper fishing grounds. This net will also include a fish eye BRD.

SEMI-INDUSTRIAL & INDUSTRIAL FLEET

In the industrial fleet, gear trials need to be made using two new nets which are identical in their mode of operation. For both semi-industrial and industrial fleets, trials need to be conducted over a longer period to obtain data form more hauls to be able to determine the effectiveness of the BRD.

4.2   General Recommendations

The existing trawl regulations specify a cod-end mesh size of 1 ½ inch when trawling for shrimp, however it is important to ensure that this refers to the inside cod-end mesh measurement.

Increase in mesh sizes in the nets, as well as introduction of net designs specific for the catch of shrimps, to avoid the actual big discards.

Introduce closed seasons for shrimp to protect the peak spawning periods of the main species of shrimp. The presence of peaks of spawning should be used as indicators for the start of a closed season however scientific and technical information need to be collected to support the decision. The establishment of closed seasons must be made in collaboration with fishermen. Since the shrimp fishery is a multispecies one, this management measure needs to include data on the spawning periods for the different shrimp species caught and a rigorous sampling programme needs to be put in place to monitor shrimp sizes.

To be able to effectively support the fishing industry in terms of collaborative work into the use of more efficient trawl gear, there is an urgent need for the Fisheries Division to enhance its technical capabilities with regard to fishing gear technology.

To enhance the capability to conduct gear testing and to share results, Trinidad and Tobago should participate in regional stakeholder and gear technologist workshops under the project for the Latin American and Caribbean group.

Fish trawling should be promoted over the use of shrimp trawls when the target is fish and appropriate net designs and rigging should be used according to the main fish species targeted.

Selectivity studies for shrimp should be completed to determine the optimum mesh size for the codend.

Continued collaboration with Venezuela particularly in the area of gear testing after the end of the Project in the Columbus Channel and the Gulf of Paria.

APPENDIX 1

Agenda for Gear Trials: 21 May – 1 June 2007

Project EP/GLO/201/GEF "Reduction of Environmental Impact from Tropical Shrimp Trawling, through the Implementation of Bycatch Reduction Technologies and Change of Management."

21/05/07   Arrival of Mr Andres Seefoo
                  Preparations for semi-industrial gear trials (Orange Valley)

22/05/07   Rigging of new semi-industrial trawl and preparation of fishing trials (San Fernando and Otaheite).

23 - 24/05/07   Fishing trips onboard semi-industrial shrimp trawler (Orange Valley)

25 – 26/05/07   Fishing trials onboard artisanal trawlers (paired trawling, traditional vs new design using fisheye) (Otaheite).

27/05/07   Arrival of Mr Thomas Moth Poulsen (FAO) and Mr Jose Alio (Venezuela)
                  Dinner with artisanal fishermen

28 - 29/05/07   Fishing trips onboard industrial shrimp trawler (Orange Valley)
                  Meeting with Director of Fisheries

30/05/07   Fishing trip onboard artisanal trawlers (paired trawling traditional vs new design using square mesh panel) (Otaheite)
                  Preparation of report

31/05/06   Courtesy call on the Permanent Secretary, Ministry of Agriculture, Land and Marine Resources (Port of Spain)
                  Visit to the FAO Regional Representative (Port of Spain)
                  Meeting with the Fisheries Division and National Steering Committee for the Project to present report on gear trials. (Fisheries Division's Head Office, Port of Spain)

01/06/07   Departure of counterparts.

APPENDIX 2

Participants

Trinidad & Tobago

FISHING INDUSTRY

Artisanal Trawler Owners

Mr. Sooklal Gajadhar - Otaheite

Mr. Mooniraj Kassie - Otaheite

Mr. Suresh Seepersad - Otaheite

Mr. Faizal Hosein - San Fernando

Mr. Ricky Baboolal - South Oropouche

Mr. Robin Baboolal - South Oropouche

Semi-Industrial And Industrial Trawler Owners

Mr. Shafffie Mohammed - Orange Valley

Fisheries Division, Ministry of Agriculture, Land and Marine Resources

Ms Suzuette Soomai - Fisheries Officer, National Co-ordinator for Project

Mr Colin Asgarali - Checker (Biological Data Collector)

Ms Wendy Thomas - Fisheries Assistant

Mr Mark Farrel – Scientific Assistant.

Mr Myron Jamieson - Checker (Data Entry)

Mexico

NATIONAL FISHERIES INSTITUTE

Andres Seefoo – Gear Technologist

Venezuela

NATIONAL INSTITUTE OF FISHERIES AND AQUACULTURE

Jose Alio - Researcher

FAO Rome

Thomas Moth Poulsen – Project Coordinator

APPENDIX 3: RESULTS OF GEAR TRIALS - Landings by fleet

ARTISANAL FLEET

	Haul 1 Experimental Net (Fish Eye)	Haul 1 Control Net	Haul 2 Experimental (Fish Eye)	Haul 2 Control Net	Haul 3 Experimental (Fish Eye)	Haul 3 Control Net
Total catch (lbs)	60.0	50.0	150.0	43.0	120.0	250.0
Total Retained Catch (lbs)	8.0	11.0	23.0	25.0	9.0	75.0
Retained Shrimp (lbs)	8.0	8.0	3.0	15.0	7.0	25.0
Retained Fish (lbs)	0.0	3.0	15.0	10.0	2.0	50.0
Retained Shellfish	0.0	0.0	5.0	0.0	0.0	0.0
Discards (lbs)	52.0	39.0	127.0	18.0	111.0	175.0

	Haul 4 Experimental Net (Fisheye)	Haul 4 Control Net	Haul 5 Experimental Net (Fisheye)	Haul 5 Control Net	Haul 6 Experimental Net (Square Mesh)	Haul 6 Control Net
Total catch (lbs)	20.0	80.0	80.0	75.0	35.2	120.0
Total Retained Catch (lbs)	6.3	14.0	8.0	16.5	4.2	18.0
Retained Shrimp (lbs)	4.8	8.0	6.0	2.5	1.2	3.0
Retained Fish (lbs)	1.5	3.0	2.0	10.0	0.0	5.0
Retained Shellfish	0.0	3.0	0.0	4.0	3.0	10.0
Discards (lbs)	13.8	66.0	72.0	58.5	31.0	102.0

	Haul 7 Experimental Net (Square Mesh)	Haul 7 Control Net	Haul 8 Experimental Net (Square Mesh)	Haul 8 Control Net	Averages Experimental Net	Averages Control Net
Total catch (lbs)	35.9	100.0	30.0	60.0	66.4	97.3
Total Retained Catch (lbs)	10.9	8.0	6.2	12.0	9.4	22.4
Retained Shrimp (lbs)	1.0	2.0	6.2	10.0	4.6	9.2
Retained Fish (lbs)	0.0	1.0	0.0	2.0	2.6	10.5
Retained Shellfish	9.9	5.0	0.0	0.0	2.2	2.8
Discards (lbs)	25.0	92.0	23.8	48.0	56.9	74.8

SEMI-INDUSTRIAL FLEET

SEMI-INDUSTRIAL FLEET

	Haul 5 Experimental Net (Fisheye)	Haul 5 Control Net	Haul 6 Experimental Net (Fisheye)	Haul 6 Control Net	Averages Experimental Net	Control Net
Total Catch (lbs)	200.0	300.0	150.0	250.0	**175.0**	**275.0**
Total Retained Catch (lbs)	111.0	110.0	35.0	75.0	**73.0**	**92.5**
Retained Shrimp (lbs)	46.0	40.0	35.0	25.0	**40.5**	**32.5**
Retained Fish (lbs)	65.0	70.0		50.0	**65.0**	**60.0**
Discards (lbs)	89.0	190.0	78.0	175.0	**83.5**	**182.5**

INDUSTRIAL FLEET

	Haul 1 Experimental Net	Haul 1 Control Net (Fisheye)	Haul 2 Experimental Net	Haul 2 Control Net (Fisheye)	Haul 3 Experimental Net	Haul 3 Control Net (Square Mesh)
Total Catch (lbs)	324.3	468.3	206.2	335.5	191.7	319.7
Total Retained Catch (lbs)	25.0	43.0	17.2	52.0	46.8	63.7
Retained Shrimp (lbs)	12.0	20.0	10.5	22.0	17.3	29.7
Retained Fish (lbs)	13.0	23.0	6.7	30.0	29.5	34.0
Discards (lbs)	299.3	425.3	189.0	283.5	144.9	256.0

	Haul 4 Experimental Net	Haul 4 Control Net (Square Mesh)	Haul 5 (Trawl nets switched) Experimental Net	Haul 5 (Trawl nets switched) Control Net (Square Mesh)	Haul 6 (Trawl nets switched) Experimental Net	Control Net
Total Catch (lbs)	237.4	370.0	280.1	364.3	115.4	132.5
Total Retained Catch (lbs)	29.5	36.1	28.1	30.4	20.9	38.0
Retained Shrimp (lbs)	12.9	23.5	15.3	12.7	14.5	13.4
Retained Fish (lbs)	16.7	12.6	12.8	17.7	6.4	24.6
Discards (lbs)	207.9	333.9	252.0	333.9	94.5	94.5

	Averages Experimental Net	Control Net
Total Catch (lbs)	**225.8**	**331.7**
Total Retained Catch (lbs)	**27.9**	**43.9**
Retained Shrimp (lbs)	**13.7**	**20.2**
Retained Fish (lbs)	**14.2**	**23.6**
Discards (lbs)	**197.9**	**287.8**