

Technical Bulletin



Needle Sizes
I-2 IB-066 Revised 05/07

Determination of Proper Needle Size For Manual Intraperitoneal Injection Vaccination

It is important to be certain that the proper needle length is used when performing injection vaccinations. The majority of vaccination teams use reusable stainless steel needles that lock into place with the Luer lock system. With proper needle care, the number of fish at the pre-smolt stage that can be injected before changing the needle is 1500-2000. This number will drop with smolts or larger fish as the scales will cause dulling of the needles. The needle must be scraped clean of scales on a regular basis to avoid shortening the penetration length. The needle bore size (diameter) recommended for use with oil-adjuvanted vaccines is a minimum of 0.6 mm. The needle bore size recommended for use with water-based vaccines is 0.5 mm.

Manufacturers of the needles have suggested needle lengths for certain sizes of fish:

Fish Size (g)	Needle Length (mm)
20-30	3
30-50	4
50-100	5
100-200	5-6
>200	6-7

The lack of specificity of the size of needle to be used with a specific weight of fish is deliberate. This factor will vary with the species and stock strain of fish as there may be dramatic difference in the depth or thickness of the body wall in individual cases. It is recommended for pre-smolts and smolts that the grade be close (within 10-15 g) on the fish that are to be manually injected. For machine vaccination the grade must be tightened to within a 5-10 gram allowance.

The following procedure must be completed to assure proper needle length:

A representative sample of graded fish to be vaccinated are sacrificed. Using a sharp knife or scapel, the belly wall is cut away to expose the internal area of the injection site. The needle size intended for use is observed as it penetrates the belly wall on a 90 degree angle on the mid-line as would be done in an intact fish, one pelvic fin length ahead of the pelvic fin girdle. The depth of penetration is assessed visually on the inside of the belly wall. The needle length should be adjusted such that 1 mm from base of bevel is inside the abdominal wall. After the visual inspection has been carried out on a number of fish (10-20) and the chosen needle lengths deemed adequate, vaccination may proceed. It is suggested that at the onset of the operation, that a few of the vaccinated fish be sacrificed and cut open as previously described, to assure that the vaccinators technique is delivering the vaccine to the appropriate area in the peritoneal cavity. It is important that the vaccine not be deposited into the body wall or pelvic fin girdle or too far forward in the body cavity, resulting in vaccine in the pyloric caeca, mesenteric fat or other organs.

For further information on this or any other topic, please contact your sales representative or technical support team at:

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