

Mycotoxins in Aquafeeds: Post-harvest measures for aquafeed producers to prevent contamination in the finished diets

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Background

Mycotoxins – a rising threat to Aquaculture, because:

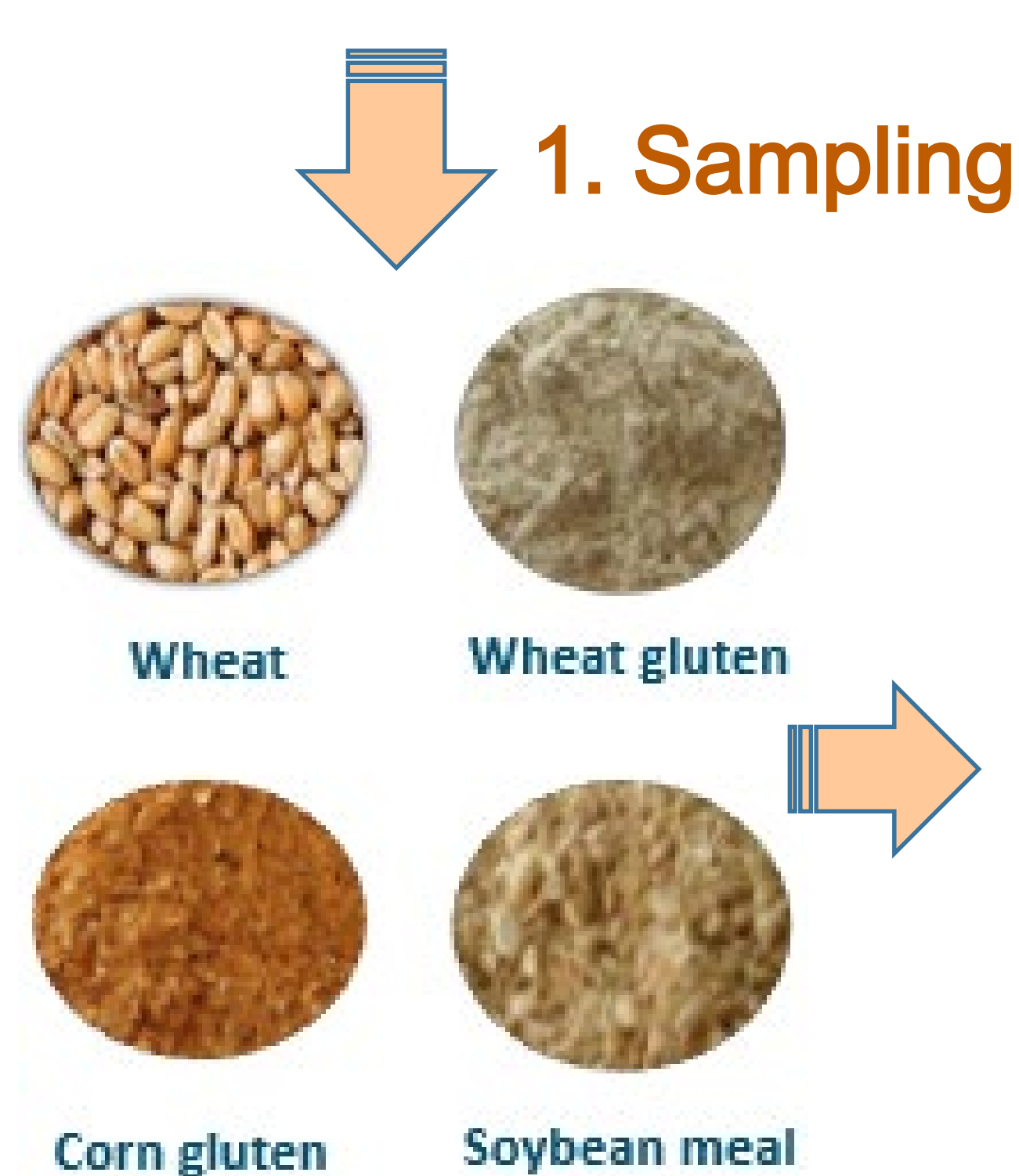
- increased use of risky/contaminated ingredient in fish feeds (e.g. plant ingredient, by-products)
- climate change

Objective

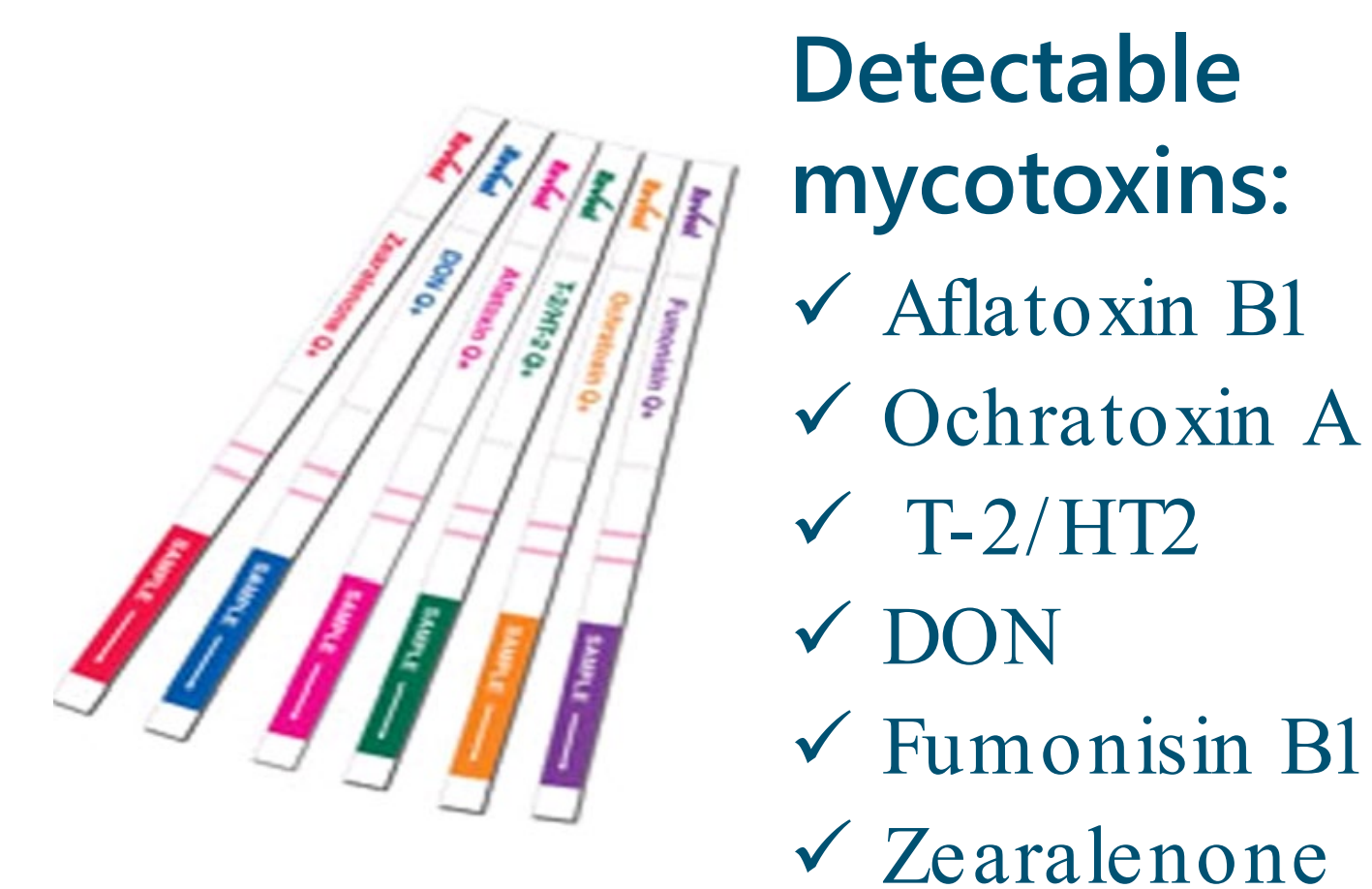
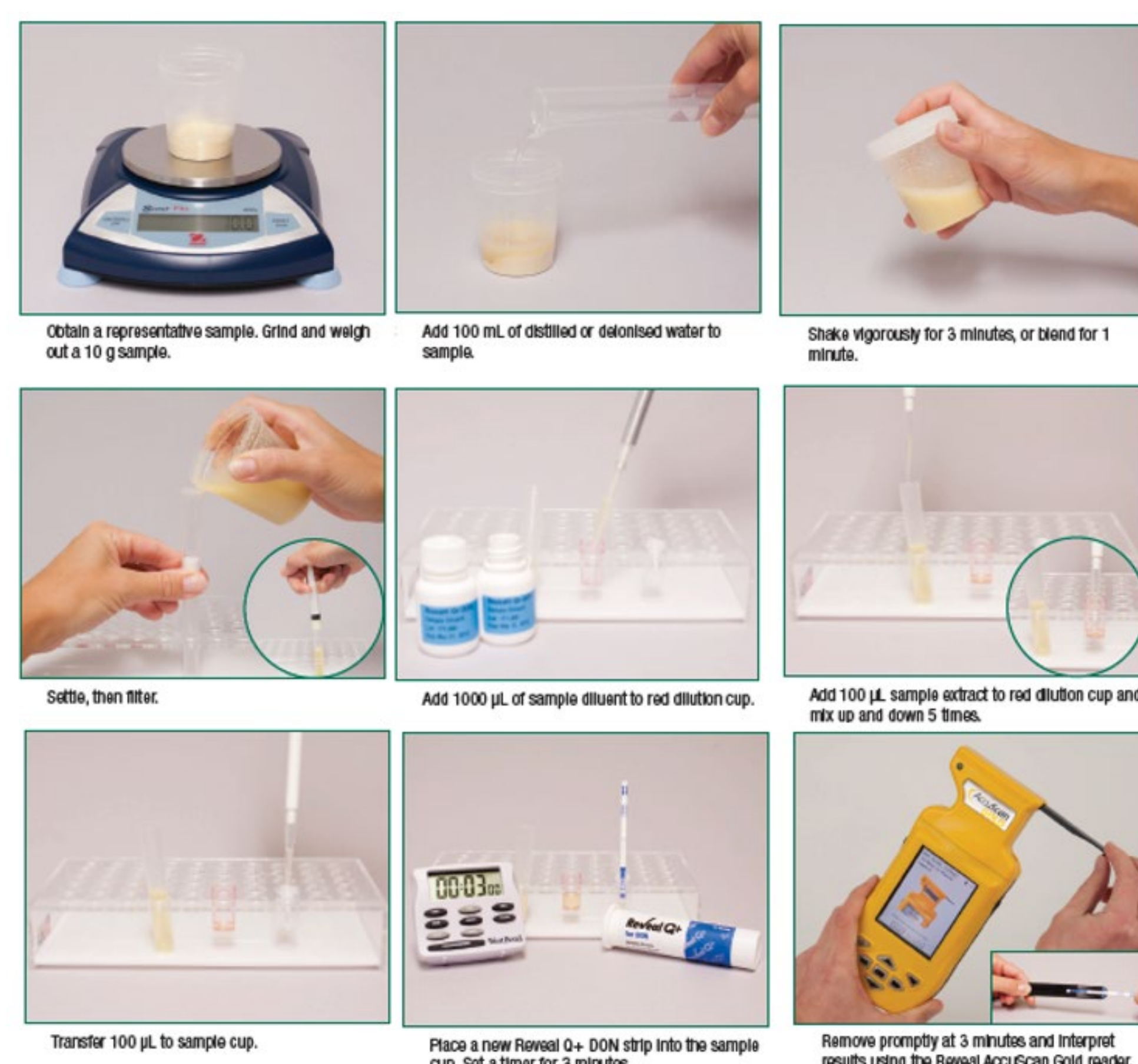
To reduce the risk of mycotoxin contamination in aquafeeds through:

- establishing of a quick monitoring procedure
- setting critical limits for the diets and conversion to practical raw ingredients limits

Rapid test for mycotoxins detection



100 incremental samples → 10kg of aggregate sample



Detectable mycotoxins:

- ✓ Aflatoxin B1
- ✓ Ochratoxin A
- ✓ T-2/HT2
- ✓ DON
- ✓ Fumonisin B1
- ✓ Zearalenone

3. Compare the results with accept/reject limits (Table 2)

Table 1. Critical limits in µg/kg (ppb) for finished fish diets, based on a literature study.

	Aflatoxin B1	DON	Fumonisin B1	Ochratoxin A	Zearalenone	T-2 & HT2
Trout	10	800	10.000	100	300	200
Catfish	50	15.000	20.000	1.000	300	1000
Salmon	20	1.000	10.000	100	300	200
Tilapia	50	300	10.000	100	300	200
Carp	10	350	10.000	100	300	200
Marine fish	18	750	10.000	100	300	200
Eel	10	1.000	10.000	100	300	250

Table 2. Recommended maximum mycotoxin limits in µg/kg (ppb) for plant ingredients commonly used in fish diets.

	Wheat	Wheat gluten	Corn gluten	Soybean meal
Aflatoxin B1	18	51	101	50
DON	525	4.044	3.033	1.500
Fumonisin B1	17.501	50.556	101.112	50.000
Ochratoxin A	175	506	1.011	500
Zearalenone	525	1.517	3.034	1.500
T-2 & HT2	350	1.011	2.022	1.000

Conclusion - Recommendations

- According to literature (Table 1), sensitivity to mycotoxins varies among fish species.
- A rapid screening method was developed for 6 specific mycotoxins.
 - A negative test outcome does not guarantee the absence of other mycotoxins.
 - A regular sample analysis by an external lab (Alltech 37+) is recommended to check the presence of other mycotoxins.
- Based on the rapid test results, proper actions can be taken: discharge of a batch / supplementation of a mycotoxin binder (Mycosorb A+).

