**Table 5.8.** Comparative guide to decision-support tools and technologies discussed in **sections 5.2** and **5.4**

This table provides an assessment of decision-support tools and technologies for cost-effectiveness, the time between the application of the technology and some desired outcome/impact and relevance of application at different spatial scales of response or management. Decision-support tools and technologies were assessed with consideration to the contexts in which they are used, as discussed in the individual technology specific subsections. Timeframe of benefit can be: short (quick but effective only in the short-term effective); medium (effective only in the medium term); long (within years of application and providing long-term effectiveness). The assessment categories are: generally relevant (✓), not generally relevant (🗴) and some relevance (🗴✓), with footnotes providing additional information.

| **Technology** | Cost-effectiveness | Timeframe of benefit | Site | Catchment | Region (within country) | Country |
| --- | --- | --- | --- | --- | --- | --- |
| **Decision-support tools** |  |  |  |  |  |  |
| Qualitative and quantitative decision-support tools | ✓ | Short-Long | ✓ | ✓ | ✓ | ✓ |
| Management relevant databases and analytics | ✓ | Medium | 🗴✓ | 🗴✓ | ✓ | ✓ |
| **Surveillance, detection and diagnostics** |  |  |  |  |  |  |
| Digital data mining – crowdsourcing general surveillance | ✓ | Short | ✓ | ✓ | ✓ | ✓ |
| Sensor-networks and smart traps | ✓ | Short-Long | ✓ | 🗴 | 🗴 | 🗴 |
| Screening technologies | ✓ | Short | ✓ | 🗴 | 🗴 | 🗴 |
| Environmental DNA | ✓ | Short | ✓ | ✓ | ✓ | ✓ |
| Sentinel surveillance & monitoring | ✓ | Medium | ✓ | ✓ | ✓ | ✓ |
| Citizen surveillance – data input portals | ✓ | Medium-Long | ✓ | ✓ | ✓ | ✓ |
| Earth observation – remote sensing detection | ✓ | Short-Long | ✓ | ✓ | 🗴✓ | 🗴✓ |
| Automated image-based diagnostics and machine learning | ✓ | Short | ✓ | ✓ | ✓ | ✓ |
| Volatile detection technologies | ✓ | Short | ✓ | 🗴 | 🗴 | 🗴 |
| Pheromone and semiochemichal lures[[1]](#footnote-1) | ✓ | Short | ✓ | ✓ | 🗴 | 🗴 |
| Acoustic/ultrasound sensors | ✓ | Short | ✓ | 🗴 | 🗴 | 🗴 |
| Point of Care / Lab on a chip, rapid test diagnostics | ✓ | Short | ✓ | ✓ | ✓ | ✓ |
| Track and trace genomics | ✓ | Short | ✓ | ✓ | ✓ | ✓ |
| **Intervention/control technologies** |  |  |  |  |  |  |
| Mechanical & manual approaches | ✓19 | Short | ✓ | ✓ | 🗴 | 🗴 |
| Pesticide management of invasive alien animals and plants | ✓19 | Short-medium | ✓ | ✓ | 🗴 | 🗴 |
| Robotic technology for targeted management measures | ✓[[2]](#footnote-2) | Short-Long | ✓ | ✓ | ✓ | 🗴 |
| Lethal control of invasive alien vertebrate pests | ✓ | Short-Medium | ✓ | ✓ | ✓ | 🗴 |
| Fertility control for invasive alien vertebrates | ✓[[3]](#footnote-3) | Short-Medium | ✓ | ✓ | 🗴 | 🗴 |
| Classical biological control of invasive plants & invertebrates | ✓[[4]](#footnote-4) | Medium-Long | ✓ | ✓ | ✓ | ✓ |
| Sterile insect technique etc. | ✓[[5]](#footnote-5) | Short | ✓ | ✓ | ✓ | 🗴 |
| Viral biological control of invasive alien vertebrates | ✓ | Medium-Long | ✓ | ✓ | ✓ | ✓ |
| RNA Interference | ✓22 | Short | ✓ | ✓ | 🗴 | 🗴 |
| Genetic-control approaches (including gene-drive) | ✓[[6]](#footnote-6) | Long | ✓ | ✓ | ✓ | ✓ |
| Adaptive integrated management strategies | ✓ | Short-Long | ✓ | ✓ | 🗴 | 🗴 |
| Ecosystem restoration | ✓ | Medium-Long | ✓ | ✓ | 🗴 | 🗴 |

1. Pheromones and semiochemical lures are considered under surveillance, detection and diagnostics but it is reconized that they may be used as an intervention technology (**section 5.5.4**) [↑](#footnote-ref-1)
2. Likely to vary on context e.g., land values and/or area of application [↑](#footnote-ref-2)
3. Only in contained populations so far without an oral delivery system (not currently available) [↑](#footnote-ref-3)
4. Where feasibility and success likelihood are high on species by species basis [↑](#footnote-ref-4)
5. Where feasibility and success likelihood are high for some invertebrates (sterile insect technique or RNAi) and pathogens (RNAi) only [↑](#footnote-ref-5)
6. As not yet field tested so only cost-effective if it works [↑](#footnote-ref-6)