**Table 5.6.** Comparative guide to applicability of decision-support tools and each approach, tool or technology discussed in **sections 5.2** and **5.4**

Assessment categories relate to use contexts discussed in the individual technology specific subsections. The table distinguishes four broad areas of management action associated with the four stages of invasion curve in **Figure 5.1**. The assessment categories are generally relevant (✓), not generally relevant (🗴) and some relevance (🗴✓), with footnotes providing additional information.

|  | **Broad areas of management actions** | | | |
| --- | --- | --- | --- | --- |
| **Technology** | Surveillance/ Detection | Eradication | Containment | Widespread Control |
| **Decision-support tools** |  |  |  |  |
| Qualitative and quantitative decision-support tools | ✓ | ✓ | ✓ | ✓ |
| Relevant databases and analytics for management of biological invasions | ✓ | ✓ | ✓ | ✓ |
| **Surveillance, detection and diagnostics** |  |  |  |  |
| Digital data mining – crowdsourcing general surveillance | ✓ | ✓ | ✓ | ✓ |
| Sensor-networks and smart traps | ✓ | ✓ | ✓ | 🗴 ✓ |
| Screening technologies | ✓ | 🗴 | 🗴 | 🗴 |
| Environmental DNA | ✓ | ✓ | ✓ | 🗴 ✓ |
| Sentinel surveillance and monitoring | ✓ | ✓ | ✓ | 🗴 ✓ |
| Citizen surveillance – data input portals | ✓ | ✓ | ✓ | ✓ |
| Earth observation – remote sensing detection | ✓ | ✓ | ✓[[1]](#footnote-1) | ✓6 |
| Automated image-based diagnostics and machine learning | ✓ | ✓ | ✓ | ✓ |
| Volatile detection technologies | ✓ | ✓ | 🗴 ✓ | 🗴 ✓ |
| Pheromone and semiochemical lures[[2]](#footnote-2) | ✓ | ✓ | ✓ | 🗴 ✓ |
| Acoustic/ultrasound sensors | ✓ | ✓ | ✓ | 🗴 ✓ |
| Point of Care / Lab on a chip, rapid test diagnostics | ✓ | ✓ | ✓ | ✓ |
| Track and trace genomics | ✓ | ✓ | ✓ | 🗴 ✓ |
| **Intervention technologies** |  |  |  |  |
| Mechanical & manual approaches | 🗴 | ✓ | ✓ | 🗴 ✓[[3]](#footnote-3) |
| Pesticide management of invasive alien animals and plants | 🗴 | ✓ | ✓ | 🗴 ✓ |
| Robotic technology for targeted management measures | ✓ | ✓ | ✓ | ✓ |
| Lethal control of invasive alien vertebrate pests | 🗴 | ✓ | ✓ | ✓ |
| Fertility control for invasive alien vertebrates | 🗴 | ✓ | ✓ | ✓ |
| Classical biological control of invasive plants & invertebrates | 🗴 | 🗴 | ✓ | ✓ |
| Sterile insect technique etc. | 🗴 | ✓ | ✓ | 🗴✓ |
| Viral biological control of invasive alien vertebrates | 🗴 | 🗴 | ✓ | ✓ |
| RNA Interference | 🗴 | ✓ | ✓ | 🗴 |
| Genetic-control approaches (including gene-drive) | 🗴 | ✓ | ✓ | ✓ |
| Adaptive integrated management strategies | 🗴 | ✓ | ✓ | ✓ |
| Ecosystem restoration | 🗴 | 🗴 | 🗴✓ | ✓ |

1. Remote sensing supporting landscape management and only likely to increase as global broadband internet access become ubiquitous e.g., via low orbital satellite constellations [↑](#footnote-ref-1)
2. 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-2)
3. Generally, these approaches do not provide widespread long-term control except when populations are contained i.e., within an offshore or mainland island context. [↑](#footnote-ref-3)