

Checklist for program staff

Considerations for general surveillance programs

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Program management

Good program management ensures a program runs smoothly, issues are dealt with promptly, the needs of different parties are known and addressed, and different kinds of information are integrated to deliver a program that is sustainable, practical and cost-effective.

Consideration	Details	Guidelines reference	✓/✗
Appoint a program coordinator (preferably supported by a team)	<ul style="list-style-type: none"> This will ensure clear ownership, leadership and coordination of the program. Selection criteria include good interpersonal, communication and management skills; leadership; and good understanding of the subject. Team members help to share the load, develop ideas and maintain momentum if someone leaves. 	2.2	<input type="checkbox"/>

Define the objectives and scope

Consideration	Details	Guidelines reference	✓/✗
Define the objectives based on 'What does success look like?'	<ul style="list-style-type: none"> Consider relevant biosecurity and other legislation; market access requirements; and industry and community priorities. 	2.3	<input type="checkbox"/>
Set the scope	<ul style="list-style-type: none"> Include the geographical reach and target pests, weeds and/or diseases (or their hosts or vectors). Prioritise species to improve cost-effectiveness, and target training and communication. Use a decision matrix to set priorities, e.g. based on threat and/or impact from a pest, weed or disease. 	2.3	<input type="checkbox"/>

Secure and maintain sufficient resourcing (financial and in-kind)

Consideration	Details	Guidelines reference	✓/✗
Consider various funding sources	<ul style="list-style-type: none"> Explore federal, state and local governments, industry bodies, NGOs, business, community groups, grants, levies or 'piggy-back' on existing initiatives. Allow time and resources for negotiation to determine a suitable funding model. Value both financial and in-kind resources. 	2.4.1	<input type="checkbox"/>
Demonstrate worth	<ul style="list-style-type: none"> Highlight direct and indirect potential/current costs from a pest, weed or disease; or how a program contributes to meeting legislative requirements. Monitor and report on progress, such as increases in notifications, training and memberships, or number of website reads. 	2.4.2	<input type="checkbox"/>
Understand the cost-effectiveness of the program	<ul style="list-style-type: none"> Be realistic about the resources needed. See Appendix 1. Common general surveillance program expenditure items. Articulate all benefits the program delivers, e.g. increased shared responsibility; trust relationships beneficial for other purposes; groups more educated/skilled in biosecurity; etc. 	2.4.3 - 2.4.4	<input type="checkbox"/>

Ways to get a general surveillance program started

Consideration	Details	Guidelines reference	✓/✗
Develop the program with key stakeholders	<ul style="list-style-type: none"> Use a 'program logic' to map how activities lead to intermediary outcomes and the program objective over time. 	2.2	<input type="checkbox"/>
Consider starting with a pilot program	<ul style="list-style-type: none"> Remember initiating a program can be time and resource intensive. Pilots are well placed for: <ul style="list-style-type: none"> co-design approaches starting with willing stakeholders who are easier to engage enabling flexible approaches, adjusting to stakeholders' needs, and ironing out teething problems building up to a practical, cost-effective larger program. 	2.3	<input type="checkbox"/>
Tap into existing programs and networks	<ul style="list-style-type: none"> Work with the capacity, willingness, motivations and barriers of existing programs and networks. Identify what organisations/individuals are suitable for certain forms of support. Consider piggy-backing on existing programs: <ul style="list-style-type: none"> potential benefits include to save resources and capitalise on existing good reputation and exposure potential risks include a lack of control over program administration, notifiers aren't located where surveillance is needed, being tainted if existing program has a poor reputation. 	2.3	<input type="checkbox"/>

Align a program with its context

Consideration	Details	Guidelines reference	✓/✗
Invest sufficient time and effort to align with the context	<ul style="list-style-type: none"> Consider the alignment requirements for: <ul style="list-style-type: none"> existing biosecurity arrangements, e.g. eradication or management government, industry and/or community priorities established processes, e.g. for identification/diagnostics, privacy and confidentiality, reporting, data management, communication building capacity or capability, e.g. for existing lab/herbarium staff, data analysts, call centre staff, etc. gaining support from stakeholders who may show resistance or not appreciate the urgency required. Contextual factors, could include community fads, e.g. popular plants and pets that are invasive; diverse community values, e.g. some groups wanting to protect invasive species; risky behaviours; etc. 	2.6	<input type="checkbox"/>

Integrate knowledge

Consideration	Details	Guidelines reference	✓/✗
Identify all sources of relevant knowledge	<ul style="list-style-type: none"> This includes scientific, policy, trade, social sciences, data management, data analysis, active surveillance, etc. 	2.7	<input type="checkbox"/>
Undertake a stakeholder analysis	<ul style="list-style-type: none"> Identify each stakeholder group's expected role (e.g. partner, supporter, etc.), their knowledge and influence; and other information e.g. needs and enablers and barriers to their support. 	2.7	<input type="checkbox"/>
Identify how knowledge integration will occur	<ul style="list-style-type: none"> Ways to integrate knowledge include direct communication between people or through a knowledge broker. Identify knowledge brokers who can 'translate' information between groups, identify how change may impact a group, and find acceptable solutions to various parties. 	2.7	<input type="checkbox"/>

Define roles and responsibilities

Consideration	Details	Guidelines reference	✓/✗
Allocate tasks throughout the program	<ul style="list-style-type: none"> Tasks include writing policies and procedures and people accepting responsibility for carrying them out. Consider who will make notifications, accept responsibility for processing them, do the identification/diagnostics for which species, manage data, and who responds to suspected priority detections. Be mindful of handover points to ensure smooth transitions. Specify contact people for important communication, e.g. in the case of a suspected priority detection. 	2.8	<input type="checkbox"/>
Monitor task allocation over time	<ul style="list-style-type: none"> Split roles where tasks are too much for one person. New/redundant roles may become apparent over time. Review procedures over time to ensure they are still appropriate. 	2.8	<input type="checkbox"/>
Address capacity building needs	<ul style="list-style-type: none"> Ensure everyone has the capacity and capability to fulfil their roles and identify ways to fill gaps. Provide training for softer skills (e.g. maintaining positive interactions with the public, conflict resolution, negotiation). 	2.8	<input type="checkbox"/>

Maintain connectivity throughout the program

Consideration	Details	Guidelines reference	✓/✗
Connect individuals fulfilling the same function	<ul style="list-style-type: none"> For example, connect notifiers with other notifiers. Connection allows for sharing ideas, discussing common challenges and increase consistency in how tasks are done. It could be face-to-face or virtual meetings; or online chat forums. 	2.9.1	<input type="checkbox"/>
Connect teams/individuals representing different functions	<ul style="list-style-type: none"> For example, connect notifiers with lab staff. Connection facilitates trust, information flow, mutual understanding, self-organisation, and people understanding how their actions affect others. Appoint a good coordinator to make these connections by: <ul style="list-style-type: none"> instigating meetings encouraging people to be responsive to the need of others communicating 'upwards' so managers are aware of the program's successes, needs and challenges initiating frank discussion within the program if needed. 	2.9.2	<input type="checkbox"/>

Build external networks

Consideration	Details	Guidelines reference	✓/✗
Engage with external agencies/groups if beneficial to the program	<ul style="list-style-type: none"> Groups may include federal, state and local governments, other government agencies, scientific organisations, industry bodies, community groups, NGOs and supply chain members. Benefits may include better notifier support; knowledge brokering; learning from others; more 'eyes and ears'; specimen/sample collections; identifications/diagnosis support; and program promotion. Ways to build networks include leveraging stakeholders' networks, attending events or organising meetings. Aim for mutually beneficial relationships. Be sensitive to the pressures others are under. 	2.10	<input type="checkbox"/>

Pests, weeds and diseases and their environment

The characteristics of a pest, weed or disease determine whether it is well-placed for general surveillance and shape how the program is best designed.

Consideration	Details	Guidelines reference	✓/✗
Engage pest, weed or disease experts	<ul style="list-style-type: none"> They can provide input into program design, in particular the approach to sampling. 	3.2	<input type="checkbox"/>

Consider the detectability of a pest, weed or disease

Consideration	Details	Guidelines reference	✓/✗
Identify the tools, technologies and skills to enable detection	<ul style="list-style-type: none"> This could include traps, lures, eDNA, visual detections, etc. Remember a disease only occurs when the pathogen, suitable hosts and environment are present. 	3.3	<input type="checkbox"/>
Consider likely abundance and distribution	<ul style="list-style-type: none"> Abundance depends on e.g. reproduction rate, climate, transmission rate for infectious diseases, habitat suitability and the time it had to multiply. Distribution depends on environmental factors (below) and where applicable, vectors and hosts. Different hosts may have varying levels of susceptibility. Consider an organism's mobility, including its ability to move itself and being carried by wind, water, vehicles or boats, other vectors,. 	3.3.1	<input type="checkbox"/>
Consider recognisability	<ul style="list-style-type: none"> Consider what may be confused with target species or disease, e.g. native/endemic 'look-alikes'; or for diseases, conditions such as nutritional deficiencies or poisoning. Consider if concealment may hinder detection, such as in aquatic environments with low visibility, plant diseases that start on roots, or insect nests at the top trees. 	3.3.2	<input type="checkbox"/>

Consider the source and spread pathways

Consideration	Details	Guidelines reference	✓/✗
Understand the risk pathway(s)	<ul style="list-style-type: none"> This is particularly important for exotic, new and emerging species. Use this to identify where a pest, weed or disease is most likely to be detected and who to engage as notifiers. 	3.4	<input type="checkbox"/>
Identify different risk zones for certain organisms	<ul style="list-style-type: none"> For example, rate them as high, moderate, low. Use tools such as Geographical Information Systems. For disease, identify when/ if potential hosts are present in suitable environmental conditions. Consider if there are different priority pests, weeds or diseases in different zones when a program covers a large area and adjust notifier engagement accordingly. 	3.4	<input type="checkbox"/>

Consider temporal factors

Consideration	Details	Guidelines reference	✓/✗
Identify times when detection is more likely	<ul style="list-style-type: none"> Identify when recognisable signs/symptoms are present, e.g. certain life cycle stages. Clinical signs of some diseases differ in different age groups or host species. 	3.5	<input type="checkbox"/>

Consider people's attitudes towards certain species and diseases

Consideration	Details	Guidelines reference	✓/✗
Adjust for factors that may influence people's willingness to monitor and report	<ul style="list-style-type: none"> People may be less willing to report species that they value, e.g. large mammals. People may be more willing to report species and diseases that elicit negative attitudes, e.g. when people feel threatened, or negative impacts are clearly visible. Some species are of interest or value to some people. Revealing their location may attract unwanted attention. 	3.7	<input type="checkbox"/>

Engaging notifiers to monitor and report

Effective engagement is important to gain and maintain notifier support. It ensures notifiers build skills to deliver quality notifications that minimise the burden on others in the system. Poor engagement can lead to notifiers dropping out, requiring resources to train new notifiers; and may damage the program's reputation.

Understand the notifiers involved

Consideration	Details	Guidelines reference	✓/✗
Identify the motivations, barriers and perspectives for all notifier groups	<ul style="list-style-type: none"> Notifiers may include the public, land managers, Indigenous communities, private businesses (e.g. private vets, crop scouts, ports), fishers, etc. Undertake a stakeholder analysis and rate their motivation, capability and capacity. Key methods include focus groups, surveys, or working closely with notifiers. Monitor motivations and barriers as they may change. 	4.2	<input type="checkbox"/>

Consider appointing people to support notifiers

Consideration	Details	Guidelines reference	✓/✗
Enlist people who present 'trusted friendly faces' to notifiers	<ul style="list-style-type: none"> They foster on-ground relationships by fielding questions; encouraging surveillance; providing support; and triaging reports. Use them as a source of on-ground intel to be responsive to on-ground issues. Allow flexibility in how this role is performed. Be mindful of their other commitments and manage variability in how they interpret program rules. 	4.3	<input type="checkbox"/>

Establish effective engagement with notifiers

Consideration	Details	Guidelines reference	✓/✗
Build and maintain trust	<ul style="list-style-type: none"> Building trust increases retainment of notifiers and leads to more educated notifiers over time who deliver quicker, more accurate and complete reports over time. 	4.3	<input type="checkbox"/>
Incorporate notifier perspectives in program design	<ul style="list-style-type: none"> Consider the best level of notifier engagement: <ul style="list-style-type: none"> - inform - 'top-down', no input, awareness-raising only - consult - 'top-down' but obtain notifier views e.g. via surveys - involve - open to 'bottom-up' input, e.g. through workshops - collaborate/co-design - equal partners. More notifier input will likely enable better meeting notifier needs, higher retention rates, quicker more accurate reports, and lower the need for dealing with issues in retrospect. Ensure notifier engagement is adequately resourced (financially, skilled staff and time). 	4.4.1	<input type="checkbox"/>
Ensure a clear value proposition for notifiers	<ul style="list-style-type: none"> Identify clear direct benefits to notifiers relating to things they care about. A stronger value proposition is needed when more time and effort are requested. 	4.4.2	<input type="checkbox"/>
Make participation simple, user-friendly and low cost	<ul style="list-style-type: none"> Ensure requested tasks and finding the required information is easy, low cost and quick. This includes easy signing-up; practical monitoring and reporting; low admin burden; activities conveniently timed; accessible resources and information; support materials provided, e.g. specimen/sample kits. Allow flexibility where possible. 	4.4.3	
Target groups well placed to support surveillance	<ul style="list-style-type: none"> Targeting increases cost-effectiveness and quality of reports (i.e. quick, accurate and complete reports). Target people with motivation, skill, and located in a priority area. Review who are the best groups to target as it may change over time. Understand target groups' perspectives and tailor engagement to them, e.g. engagement methods, value proposition, reporting tools, etc. 	4.4.4	
Deal with expectations	<ul style="list-style-type: none"> Identify notifier expectations and be responsive by meeting or communicating with them early and often. Avoid overstating what the program will deliver. Basic expectations include having a positive reporting experience (below), evidence that the program delivers, and that legal and duty of care requirements are being met. Communicate to notifiers what they can expect after they have made a report. 	4.4.5	
Support notifiers in their task	<ul style="list-style-type: none"> Support may include clear and simple instructions, training (e.g. face-to-face or online), some mentoring and appointing support people ('trusted friendly faces'). 	4.4.6	
Deliver a positive reporting experience	<ul style="list-style-type: none"> As a minimum always treat notifiers with respect and ensure privacy and confidentiality. Other ways include prompt responses to notifications, providing individual feedback, being helpful, being transparent, maintaining a sense of achievement, and smooth administrative processes. 	4.4.7	
Be agile and responsive	<ul style="list-style-type: none"> Respond to issues and opportunities as they arise to maintain momentum. Advocate for program staff having some level of independence, i.e. not being slowed by bureaucratic processes. 	4.4.8	
Engage with the broader context in mind	<ul style="list-style-type: none"> Ensure program messaging is in line with broader biosecurity messaging. Consider including broader biosecurity messages to well-engaged groups but avoid overloading them. 	4.4.9	

Provide well-considered reporting avenues

Consideration	Details	Guidelines reference	✓/✗
Choose and design reporting tools and ways to provide supporting evidence that suit notifiers	<ul style="list-style-type: none"> Consider making various reporting avenues available to accommodate different preferences. Include existing ones, e.g. hotlines. Minimise the reporting burden on notifiers, e.g. the info requested or the number of steps in an app are minimal. Aim for co-designing tools, such as apps, with notifiers. Test reporting tools thoroughly with diverse end-users who will use them in different situations. Ensure reporting tools can be maintained and updated. Use plain English and avoid ambiguity. 	4.5.1	<input type="checkbox"/>
Ensure the reporting avenues meet program staff needs	<ul style="list-style-type: none"> This avoids adding unnecessarily to workloads, e.g. data cleaning, reformatting or follow-up with notifiers. 	4.5.1	<input type="checkbox"/>
Identify the best way for follow-up communication with notifiers	<ul style="list-style-type: none"> Ensure a positive reporting experience. Consider: <ul style="list-style-type: none"> the reporting tool used (e.g. easy to reply to emails) notifier preferences time demands (e.g. making phone calls can be time consuming, but enable rapid clarification) nature of the exchange (is it providing feedback only or is more info requested) training needs of people throughout the system, who may need to interact with notifiers, e.g. in labs or data managers. 	4.5.3	<input type="checkbox"/>

Considerations for common reporting tools

Consideration	Details	Guidelines reference	✓/✗
<i>Hotlines/dedicated phone lines</i>	<ul style="list-style-type: none"> Ensure the number is well advertised and easy to find, e.g. with a Google search. Assign people with the appropriate training and/or expertise to answer calls. Aim for calls to be free or at very low cost. Arrange for correct and timely direction of calls to appropriate team/experts, including for after hours. Consider that mobile reception may be low in rural areas. 	4.5.1	<input type="checkbox"/>
<i>Dedicated email address</i>	<ul style="list-style-type: none"> Appoint staff to monitor dedicated email addresses. Direct notifiers to a dedicated email address from relevant websites and/or print material. Consider that emails can be difficult to compile in the field on a mobile phone, and poor internet connection in remote areas may deter reporting. 	4.5.1	<input type="checkbox"/>
<i>Applications (apps - include online forms and software used on mobile phones)</i>	<ul style="list-style-type: none"> Apps can be used for information provision and reporting. Consider piggy-backing on existing apps to reduce competition and save resources. Allocate resources to update the app over time. Consult widely/Co-design early with end-users to meet their needs: <ul style="list-style-type: none"> the user interface should make reporting quick and easy and accommodate in-field demands (e.g. enable later upload of reports/images if internet access is poor) store data layers to allow for data integration, e.g. spatial data design the backend software to minimise inefficiencies for data users, e.g. the need for data cleaning/reformatting. 	4.5.1	<input type="checkbox"/>

Considerations for supporting material and information

Consideration	Details	Guidelines reference	✓/✗
<i>Samples and specimen submissions</i>	<ul style="list-style-type: none"> Consider if/when sample and specimens are needed, e.g. always required; only to confirm an identification/diagnosis; or discouraged (e.g. to prevent contributing to spread of prohibited weeds). Identify training needs, e.g. to take specialised samples, or preserve specimens. Minimise the cost to notifiers, e.g. provide free postage/courier. 	4.5.2	<input type="checkbox"/>
<i>Photos</i>	<ul style="list-style-type: none"> Photos are well suited for triaging and initial identification for pests and weeds. They are less ideal for many diseases. Provide guidance on how to take good photos to minimise need for follow-up with notifiers. 	4.5.2	<input type="checkbox"/>

Incorporate legislative and other duty of care requirements

Consideration	Details	Guidelines reference	✓/✗
Seek legal advice	<ul style="list-style-type: none"> Ensure the unique circumstances of the program is considered together with all relevant external rules and regulations to avoid legal risk. 	4.6	<input type="checkbox"/>
Care for formal volunteers	<ul style="list-style-type: none"> When enlisting formal volunteers: <ul style="list-style-type: none"> consult the National Standards for Volunteer Involvement consider having rules in place to protect the program and volunteers, e.g. police checks, code of conduct, etc. consider enlisting people as 'notifiers' or 'collectors' to simplify legal requirements, but seek legal advice. 	4.6.1	<input type="checkbox"/>
Ensure health and safety requirements are covered	<ul style="list-style-type: none"> Do a risk assessment of potential injury to notifiers, ideally in consultation with notifier representatives. Avoid potential legal risk by: <ul style="list-style-type: none"> aligning with the relevant jurisdiction's health and safety legislation discouraging hazardous activities and give alternatives (e.g. submit a photo rather than touching dead animals). Provide Safe Work Method Statements if needed providing training, guidance and initial in-field supervision providing protective equipment and instructions on use reminding notifiers to label packaged hazardous samples with a warning to lab staff of the potential hazard requiring mandatory vaccinations for lab staff handling hazardous samples. 	4.6.2	<input type="checkbox"/>
Identify potential source of liability	<ul style="list-style-type: none"> For example, notifiers' private property getting damaged, injury or allergic reactions causing medical expenditure, or trespassing resulting in legal costs. Prevent unwanted claims, e.g. be transparent about what, if any insurance cover is provided; request sign-off on disclaimers and indemnity; and include liability issues in training and guidance documentation. 	4.6.3	
Identify privacy and confidentiality issues	<ul style="list-style-type: none"> Privacy legislation may differ between jurisdictions. Ensure that sensitive data (e.g. personal details of notifiers) are collected, stored and accessed in accordance with privacy legislation. Consider saving metadata in a separate database to the detections' details. Inform notifiers before they give consent what information is being collected; why; and how and what it will be used for. Make allowance for notifiers who wish to stay anonymous. 	4.6.4	
Identify what things may involve intellectual property	<ul style="list-style-type: none"> For example, photos, specimens/samples and data that notifiers provide. Obtain notifier permission before use, e.g. include it in the conditions of an app, or the terms and conditions related to submitting specimens/samples. 	4.6.5	

Pest and weed identification and disease diagnosis

Sound identification/diagnosis processes are vital to support the trust placed in general surveillance data. New technological developments offer opportunities to gain information and efficiencies. Processes need to be in place to ensure labs/herbariums can deal with general surveillance notifications, including such as minimising out-of-scope notifications.

Consider how identification/diagnosis is best undertaken

Consideration	Details	Guidelines reference	✓/✗
Consider availability and cost-effectiveness	<ul style="list-style-type: none"> Consider the purpose of the program and rigor needed for identification/diagnosis. Consider sources of expertise, e.g. governments, universities and private labs. Consider technological options, e.g. eDNA, PCRs, etc. 	5.2	<input type="checkbox"/>
Identify the required adjustments	<ul style="list-style-type: none"> Lab/herbariums may need to make adjustments to accommodate a GS program, e.g. updates to policies & procedures or hygiene arrangements. Consider workloads and additional complexity, e.g. staff rosters to keep track of notifier follow-up. 	5.2	<input type="checkbox"/>
Identify if there is a need for staff training/support	<ul style="list-style-type: none"> Lab/herbarium staff may benefit from training in how to interact with notifiers or being kept up to date about contextual information, e.g. diseases detected in neighbouring jurisdictions. 	5.2	<input type="checkbox"/>

Prevent labs from getting overwhelmed by notifications

Consideration	Details	Guidelines reference	✓/✗
Maximise the quality of the incoming notifications (not just the number of notifications)	<ul style="list-style-type: none"> Quality notifications are accurate, timely and complete. Offer adequate training and support to notifiers (see above). Target individuals/groups well placed to make detections (geographically or expertise wise). Use tools that support quality notifications, e.g. apps that provide information about what to report, to minimise 'false positives' and the need for follow-up. Educate notifiers by providing feedback to their reports so the quality of reports improves over time. 	5.3.1	<input type="checkbox"/>
Put triage processes in place	<ul style="list-style-type: none"> Use triage to filter out species that are out of scope. Identify at what point(s) in the system it could be best done, such as through call centres; specially appointed people such as regional coordinators; internal processes such as risk assessments in labs receiving notifications; or technology, such as photos via apps that can indicate if a specimen is needed. 	5.3.2	<input type="checkbox"/>
Maximise the capacity of identification/diagnostic team	<ul style="list-style-type: none"> Maintain communication between engagement and identification/diagnostic teams to ensure promotions that encourage reporting are attuned to lab/herbarium needs. Minimise staff turnover to benefit from highly experienced staff. Advocate for investment in new staff and allow for time, training and mentoring to get them up to speed. Increase staff capabilities so they can be multi-skilled. Free staff up from other responsibilities. Invest in technology, e.g. PCRs and eDNA to speed up identifications/diagnostics. Contract identification/diagnostics to third parties. 	5.3.3	<input type="checkbox"/>

Maintain specimen/sample quality to prevent compromising identification/diagnostics

Consideration	Details	Guidelines reference	✓/✗
Identify how specimen/ sample quality will be maintained throughout their lifetime	<ul style="list-style-type: none"> Consider how they are best: <ul style="list-style-type: none"> chosen and/or prepared – do notifiers need training? transported and stored – consider courier services, special packages for temperature considerations, and travel distances transferred through large government organisations to reach identification/diagnostic team in a timely way stored/discarded. 	5.4	<input type="checkbox"/>

Other considerations to maintain data accuracy and timeliness

Consideration	Details	Guidelines reference	✓/✗
Consider if labs need accreditation to undertake certain diagnostic tests	<ul style="list-style-type: none"> For example, by the National Association of Testing Authorities under ISO17025. 	5.5	<input type="checkbox"/>
Support data accuracy and timeliness in labs/ herbariums	<ul style="list-style-type: none"> Ensure appropriate policies and procedures are in place, e.g. fast track processes for suspected priority detections; special arrangements when there is a surge in reports; double checking of priority detections; preserving specimens/samples to allow for re-identification. 	5.5	<input type="checkbox"/>

Data use design and management

The ways data are collected, verified, transferred, stored, analysed and used have a considerable impact on the effectiveness, timeliness and value of the data.

Ensure data use requirements are well defined

Consideration	Details	Guidelines reference	✓/✗
Ensure the program's objective(s), scope and available resources are well defined	<ul style="list-style-type: none"> This will inform the approach to sampling, data collection and analysis. Consider primary (e.g. early detection) and secondary (e.g. dissemination of information to interested parties) purposes. 	6.2	<input type="checkbox"/>
Identify preferences and requirements of data users	<ul style="list-style-type: none"> Use this to maximise the trust they place and the utility they get from the data. 	6.2	<input type="checkbox"/>

Consider the approach to sampling

Consideration	Details	Guidelines reference	✓/✗
Consider the desirable level of sensitivity	<ul style="list-style-type: none"> Sensitivity refers to the ability to detect a pest, weed or disease when it is present. 	6.3	<input type="checkbox"/>

Consideration	Details	Guidelines reference	✓/✗
Consider the acceptable level of specificity	<ul style="list-style-type: none"> Specificity relates to the extent to which dealing with out-of-scope species or pathogens is an issue. 	6.3	<input type="checkbox"/>
Consider the search effort required	<ul style="list-style-type: none"> A low probability to detect something will require a higher search effort. 	6.3	<input type="checkbox"/>
Identify biases, gaps and redundancies in data and ways to deal with them	<ul style="list-style-type: none"> Biases, gaps and redundancies can happen geographically, over time or between species, e.g. species with a striking appearance are more likely to be detected. 	6.3	<input type="checkbox"/>
Plan follow-up surveillance activities if a significant detection is made	<ul style="list-style-type: none"> Ensure that the relevant arrangements are in place. 	6.3	<input type="checkbox"/>
Develop protocols for more structured programs	<ul style="list-style-type: none"> Involve relevant parties in their development, e.g. government and industry representatives. 	6.3	<input type="checkbox"/>
Consider risk pathways for exotic, new and emerging species	<ul style="list-style-type: none"> Use them to guide the targeting of surveillance efforts. Consider factors that increase risk, e.g. climatic and habitat conditions, presence of vectors/hosts, transport routes for 'stowaways' and natural dispersal. 	6.3	<input type="checkbox"/>
Adjust to the distribution of notifiers and their expected effort	<ul style="list-style-type: none"> Consider how to get coverage in areas that are less likely to be serviced by notifiers. Consider using incentives to target notifier efforts, e.g. higher subsidies for significant disease investigations that may involve more important detections. 	6.3	<input type="checkbox"/>
Manage trade-offs between data collection requirements and scientific integrity	<ul style="list-style-type: none"> Adapt to notifier preferences, without jeopardising the desired level of scientific integrity, e.g. by maintaining consistent timing and methods of monitoring activities. Ensure a shared understanding about what is expected, e.g. by meeting with and/or visiting notifiers, or arranging meetings between notifiers. Consider the trade-off between the volume of data collected and how useful it is. 	6.3	<input type="checkbox"/>

Consider data capture

Consideration	Details	Guidelines reference	✓/✗
Optimise the quality of data capture	<ul style="list-style-type: none"> Prevent scarce resource being spent on unnecessary data cleaning, reformatting and follow-up with notifiers. Helpful strategies and tools include notifier training and support; well-designed reporting tools; triage systems; data standards; and software for automatic checks of entries, and minimal use of free text. 	6.4 & 6.4.1	<input type="checkbox"/>
Consider what information is required from notifiers	<ul style="list-style-type: none"> This may include date and time; notifier contact details; suspected pest/weed/disease; the species affected (by disease) and/or host; location; indication of prevalence or absence; nil detections (zeros). Limit the information requested, asking too much from notifiers discourages participation. 	6.4.1	<input type="checkbox"/>

Consider data flow

Consideration	Details	Guidelines reference	✓/✗
Do a risk analysis of the data flow	<ul style="list-style-type: none"> To ensure risks are identified and managed so data reach the desired database/audience(s) in a timely and useful form. Risks include human errors (e.g. during manual transfer) or technological issues affecting data quality or flow efficiencies. Flow diagrams can help illustrate data flows and communicate weak points, improvement opportunities and the people/teams involved. 	6.4 & 6.4.2	<input type="checkbox"/>
Carefully manage data migrations to new platforms	<ul style="list-style-type: none"> Ensure IT staff understand the complexity of data and the connections between different databases. 	6.4.2	<input type="checkbox"/>

Consider data storage

Consideration	Details	Guidelines reference	✓/✗
Design an efficient data management system that works for all	<ul style="list-style-type: none"> This will avoid wasting time cleaning or collecting better data, fixing errors, and risk getting a poor reputation. Consult designers, programmers, analysts, users and notifiers when designing a new database or making updates. Consider things such as the skill sets and training needed, user access and administrator rights, flexibility to add or remove fields, links with other databases, and APIs to support data sharing. Aim for simplicity and avoid over-engineering a database. 	6.4 & 6.4.3	<input type="checkbox"/>
Accommodate the data load	<ul style="list-style-type: none"> Consider the space needed all general surveillance data, including photos and storing physical samples/specimens. Consider the potential for sudden influxes of data, e.g. during peak periods or during a blitz. Ensure data back-up systems are in place in case servers fail. 	6.4.3	<input type="checkbox"/>
Minimise the risk of losing knowledge about a database	<ul style="list-style-type: none"> Ensure several people have an in-depth understanding of sizeable and complex databases. Clearly document instructions on database use. Do in-depth handovers when staff leave. 	6.4.3	<input type="checkbox"/>
Ensure sensitive data is stored securely	<ul style="list-style-type: none"> Consider how different kinds of data are stored, e.g. metadata and locations of pests, weeds or diseases. Consider data security. Data stored overseas may have less protections than if stored in Australia. 	6.4.3	<input type="checkbox"/>
Avoid cluttered databases	<ul style="list-style-type: none"> Remove redundant names and contact details as they can give a false impression of the number of notifiers and may waste resources if mailouts are involved. 	6.4.3	<input type="checkbox"/>

Consider data analysis and value

Consideration	Details	Guidelines reference	✓/✗
Use the FAIR data principles	<ul style="list-style-type: none"> Fair - Findable, Accessible, Interoperable, Reusable This will enable better data analysis, availability and sharing. 	6.4.4	<input type="checkbox"/>
Ensure sound data inferences	<ul style="list-style-type: none"> Ensure data analysts have a thorough understanding of the data including the context and potential biases to ensure sound inferences. Adequately resource data analysis capability to ensure the appropriate methods and models are used, e.g. sophisticated statistical techniques. 	6.4.4	<input type="checkbox"/>
Maximise value from the data	<ul style="list-style-type: none"> Consider integrating surveillance with supplementary data, e.g. climate, soil types, vector spread, human population, etc. 	6.4.4	

Consideration	Details	Guidelines reference	✓/✗
	<ul style="list-style-type: none"> Consider how demand for data can be strengthened to attract more investment. Share data where possible. Invest in user-friendly data analysis tools, e.g. to support interactive visualisations, reports and dashboards. 		<input type="checkbox"/>

Continual improvement

Monitoring and evaluation (M&E) are key ways to achieve continual improvement by helping to understand how to best spend scarce resources, and to identify and be responsive to issues and opportunities.

Embed M&E in the program

Consideration	Details	Guidelines reference	✓/✗
Develop and implement a M&E plan	<ul style="list-style-type: none"> Include a vision statement and an overview of how activities will lead to intermediate outcomes that will lead to the vision (i.e. a program logic). Ways to support M&E include: <ul style="list-style-type: none"> collecting baseline information to measure progress against monitoring notifier performance and experiences regularly reflect on the program performance with team members to identify opportunities for improvement regularly meeting with people throughout the program to stay abreast of issues investing in program reviews. Ensure lessons learned are communicated to the relevant people (i.e. working in particular functions) throughout the system. 	7.2	<input type="checkbox"/>
Support continual improvement	<ul style="list-style-type: none"> Principles include openness to change; a 'growth mindset'; some risk-taking; responsiveness to issues and opportunities; and being in touch with the on-ground situation. 	7.2	<input type="checkbox"/>

Actively manage risk

Consideration	Details	Guidelines reference	✓/✗
Do risk assessments	<ul style="list-style-type: none"> Complete them at the start of the program and at various times throughout. Prioritise risks on their likelihood and consequences and put measures in place starting with the highest priority risks. 	7.3	<input type="checkbox"/>

Interactions to look out for

Consideration	Details	Guidelines reference	✓/✗
Identify and monitor feedback loops	<ul style="list-style-type: none"> Feedback effects happen when change in one part of the program impact another. Prevent feedback loops delivering negative outcomes and encourage feedback loops delivering positive outcomes. 	7.4.1	<input type="checkbox"/>
Identify and manage the most limiting factor(s)	<ul style="list-style-type: none"> The most limiting factor is the variable that is most important for progress and thus best to invest in. Examples include staff resources, notifications and data. Where possible, identify thresholds e.g. the number of notifications that lab staff can identify in a given time. 	7.4.2	<input type="checkbox"/>

Consideration	Details	Guidelines reference	✓/✗
Identify and capitalise on leverage points	<ul style="list-style-type: none"> A small shift in one area can deliver considerable benefit(s) in other area(s) or to the whole program, e.g. mindset changes in management; enabling legislation; programs being mutually beneficial to key stakeholders to secure their support; and investing in key technologies. 	7.4.3	<input type="checkbox"/>

An enabling environment

General surveillance programs do not operate in isolation. The broader operating environment could enable or hinder a general surveillance program on various fronts. It is important that broader biosecurity rules and regulations, stakeholder relationships and networks, capability and capacity, and resourcing are designed and supported to facilitate general surveillance programs.

Broader rules and regulations

Consideration	Details	Guidelines reference	✓/✗
Identify and align with broader rules	<ul style="list-style-type: none"> These include international rules (e.g. related to market access, biodiversity or one health) legislation, regulations, organisational plans, codes of practices, etc. Consider embedding the program in legislative requirements to strengthen its legitimacy. Ensure the program aligns with existing biosecurity arrangements, e.g. management and response plans. Comply with biosecurity regulations, e.g. permits to keep restricted species and hygiene protocols. Identify and comply with relevant external rules, e.g. aviation rules for drones, safety rules on certain premises. Where possible, assist key stakeholders to comply with legislation to maximise their support, e.g. being the easiest way to fulfil mandatory reporting requirements. 	8.2.1 & 8.2.2	<input type="checkbox"/>
Influence rules and regulations	<ul style="list-style-type: none"> When biosecurity rules and regulations are reviewed, seek to participate in the process so updates can support general surveillance. 	8.2.3	<input type="checkbox"/>

Relationships and networks

Consideration	Details	Guidelines reference	✓/✗
Advocate for broader initiatives that support positive stakeholder relationships and networks	<ul style="list-style-type: none"> This includes broader biosecurity awareness campaigns and co-designed agreements between government and industry. Create awareness among those implementing on-ground functions that the impressions they leave with groups have implications for subsequent engagement with these groups. Encourage reviews of response and other initiatives that involved community and/or stakeholder interaction to understand positive and negative impacts. 	8.3	<input type="checkbox"/>
Strike a balance between softer educational approaches and enforcement	<ul style="list-style-type: none"> Remind those with enforcement powers that overly quick or harsh approaches have adverse effects, e.g. creating fear that deters reporting, or dumping species that could lead to their spread. Support decisive action when biosecurity laws are violated to maintain their legitimacy. 	8.3.1	<input type="checkbox"/>

Capability and capacity

Consideration	Details	Guidelines reference	✓/✗
Advocate for building capacity and capability to support general surveillance	<ul style="list-style-type: none"> For example, invest in enabling technologies e.g. to quicken identification/diagnostics and build relevant skills. Advocate for investing in increased capability to meet the rising demand. 	8.4	<input type="checkbox"/>

Resourcing

Consideration	Details	Guidelines reference	✓/✗
Advocate for investment in general surveillance programs and related functions	<ul style="list-style-type: none"> This includes for tangible needs (e.g. reporting tools, databases, websites) and intangible needs (e.g. positive relationships, knowledge integration, context alignment, capacity building, response capacity). 	8.5	<input type="checkbox"/>
Advocate for funding conditions that meet the needs of new general surveillance programs	<ul style="list-style-type: none"> For example, to have flexibility in key deliverables when co-design processes are involved. 	8.5	<input type="checkbox"/>

Appendix 1. Common general surveillance program expenditure items

Functions

Expenditure item	Considerations / examples	Guidelines reference
Program coordination	<ul style="list-style-type: none"> • Paid position(s) reduces the risk that vital activities won't be completed in a timely fashion. • Tasks include program administration, representation, monitoring and evaluation. 	2.2
Internal stakeholder engagement	<ul style="list-style-type: none"> • This maintains connectivity throughout the program. • It is often fulfilled by the program coordinator/team 	2.9
External stakeholder engagement	<ul style="list-style-type: none"> • This builds external networks. • It is often fulfilled by the program coordinator/team. 	2.10
Capacity building	<ul style="list-style-type: none"> • This includes training notifiers, call centre staff and people to use databases. • It may include training in softer skills such as dealing with members of the public, conflict resolution, etc. 	4.4.6, 4.5.1, 4.5.2 6.5.3
Triage	<ul style="list-style-type: none"> • This may be provided by hotline call centre staff, program team, appropriate skilled volunteers, or industry body staff who have trust relationships with farmers. 	5.3.3 Table 2
Database management	<ul style="list-style-type: none"> • This is key to realising program benefits and demonstrating worth. • It is often fulfilled as a paid position with the administering organisation. 	2.4.7
Notifier engagement	<ul style="list-style-type: none"> • This will gain and maintain their support (e.g. training, communication). • Notifiers may be subsidised to cover substantial costs (e.g. travel and accommodation expenses for private vets in remote areas). • Notifiers may be paid to contribute (e.g. Indigenous rangers in northern Australia). • Notifiers may co-fund their involvement if they receive direct benefit from participating. 	Chapter 4, 4.4.2 4.4.4
Identification/ Diagnostics	<ul style="list-style-type: none"> • This must be adequately resourced to avoid creating a bottle-neck and/or staff burnout and turnover. • It may be absorbed within routine business of government staff but capacity needs to be monitored during high reporting periods, and additional resources allocated, if necessary. • Some NGOs contribute to disease diagnostics, e.g. for wildlife health. • Private companies may be suited to identify ongoing routine notifications and clear large influxes. • Volunteers may be used to identify online notifications, but significant finds need to be vetted through a formalised process. • Be aware of the trade-off between accuracy, efficiency and cost of different identification and diagnostic methods. • Automated methods can have greater direct costs, but deliver results quicker with less labour than manual methods. 	5

Operational costs

Expenditure item	Considerations / examples	Guidelines reference
Applications and software packages	<ul style="list-style-type: none"> Invest in the careful design, construction and adaptation of applications and software packages to enable efficient notifications . 	4.5
Equipment	<ul style="list-style-type: none"> Examples include submission kits for livestock samples, settlement arrays for ports, or insect traps for households. Invest in the careful design, construction and adaptation of effective and practical equipment. 	5.2 5.4 6.3
Identification/ diagnostics	<ul style="list-style-type: none"> Be aware of the trade-off between accuracy, efficiency and cost of different identification and diagnostic methods. Automated methods can have greater direct costs, but be less labour intensive compared to more manual methods. 	5
Legal advice	<ul style="list-style-type: none"> This may be required to ensure that duty of care is fulfilled for participants and the program is not at risk of liability. 	4.6
Workshop costs	<ul style="list-style-type: none"> Costs could include venue hire and catering for training days and sometimes travel budgets. 	
Postage and delivery fees	<ul style="list-style-type: none"> Subsidise or cover the cost of sample/specimen submissions (i.e. postage or courier costs) to encourage notifications. Printed material may incur delivery costs. 	4.4.3
Production of communication material	<ul style="list-style-type: none"> Material includes pamphlets, newsletters, training material and calendars. Costs can be avoided by providing resources online. 	