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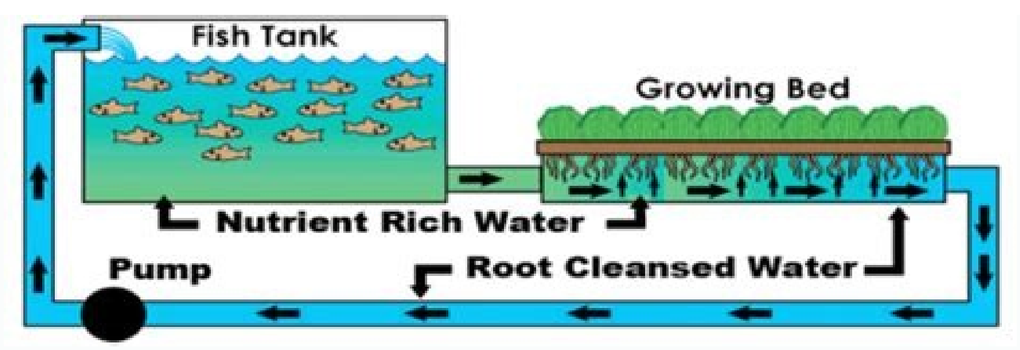


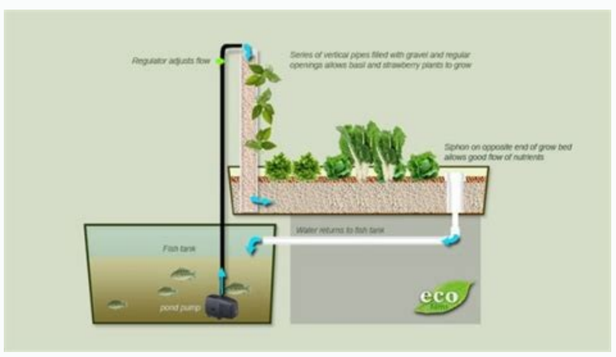


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Hydroponics is a system of growing plants that helps to alleviate some of the pests, diseases, and environmental issues such as heavy rain, drought, and soil nutrient problems that are common to modern crop farming.From: Future Foods, 2022 Authority in a particular area or topic A subject-matter expert (SME) is a person who has accumulated great knowledge in a particular field or topic and this level of knowledge is demonstrated by the person's degree or licensure, i.e. a PhD in Chemistry could be easily declared as an SME in Chemistry, Even as a person with a Second Class Radio Telegraph License (or equivalent) issued by the National Licensing body (FCC in the United States,[1] OFCOM in the UK,[2] and NTC in the Philippines,[3] and other authorities around the world) could be considered an SME in Radio Telegraph. A person with a Master's degree in Electronic Engineering could be considered a Subject Matter Expert in Electronics. The term is used when developing materials about a topic (a book, an examination, a manual, etc.), and expertise on the topic is needed by the personnel developing the material. For example, tests are often created by a team of psychometricians and a team of SMEs. The psychometricians understand how to engineer a test while the SMEs understand the actual content of the exam.[4] Books, manuals, and technical documentation are developed by technical writers and instructional designers in conjunctions with SMEs. Technical communicators interview SMEs to extract information and convert it into a form suitable for the audience. SMEs are often required to sign off on the documents or training developed, checking it for technical accuracy. SMEs are also necessary for the development of training materials.[5] By field In pharmaceutical and biotechnology areas, ASTM standard E2500[6] specifies SMEs for various functions in project and process management. In one project, there will be many SMEs who are experts on air, water, utilities, process machines, process, packaging, storage, distribution and supply chain management. "Subject Matter Experts are defined as those individuals with specific expertise and responsibility in a particular area or field (for example, quality unit, engineering, automation, development, operations). Subject Matter Experts should take the lead role in the verification of manufacturing systems as appropriate within their area of expertise and responsibility." —ASTM E2500 §6.7.1 and §6.7.2.[6] In engineering and technical fields, a SME is the one who is an authority in the design concept, calculations and performance of a system or process. In the scientific and academic fields, subject matter experts are recruited to perform peer reviews[7] and are used as oversight personnel to review reports in the accounting and financial fields.[8] A lawyer in an administrative agency may be designated an SME if they specialize in a particular field of law, such as tort, intellectual property rights, etc. A law firm may seek out and use an SME as an expert witness.[9] In electronic discovery environments, the term "SME" labels professionals with expertise using computer-assisted reviewing technology (CAR) and Technology Assisted Review (TAR) to perform searches designed to produce precisely refined results that identify groups of data as potentially responsive or non-responsive to relevant issues. E-discovery SMEs also typically have experience in constructing the search strings used in the search. It also refers to experts used to "train" the TAR systems.[10] Domain expert (software) This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. (May 2020) (Learn how and when to remove this template message) A domain expert is frequently used in expert systems software development, and there the term always refers to the domain other than the software domain. A domain expert is a person with special knowledge or skills in a particular area of endeavour[11] (e.g. an accountant is an expert in the domain of accountancy). The development of accounting software requires knowledge in two different domains: accounting and software. Some of the development workers may be experts in one domain and not the other. In software engineering environments, the term is used to describe professionals with expertise in the field of application. The term "SME" also has a broader definition in engineering and high tech as one who has the greatest expertise in a technical topic. SMEs are often asked to review, improve, and approve technical work; to guide others; and to teach. According to Six Sigma, an SME "exhibits the highest level of expertise in performing a specialized job, task, or skill of broad definition."[12] In software development, as in the development of "complex computer systems" (e.g., artificial intelligence, expert systems, control, simulation, or business software), an SME is a person who is knowledgeable about the domain being represented (but often not knowledgeable about the programming technology used to represent it in the system). The SME tells the software developers what needs to be done by the computer system, and how the SME intends to use it. The SME may interact directly with the system, possibly through a simplified interface, or may codify domain knowledge for use by knowledge engineers or ontologists. An SME is also involved in validating the resulting system. SME has formal meaning in certain contexts such as Capability Maturity Models. See also Consultant Domain knowledge Knowledge engineering Professional Subject-matter expert Turing test References ^ "FCC". Federal Communications Commissionn. United States Gov't. Retrieved 10 June 2022. ^ "Ofcom". Office Of Communications. HMS Gov't of the UK. Retrieved 10 June 2022. ^ "NTC". National Telecommunications Commission. 3rd Republic of the Philippines. Retrieved 10 June 2022. ^ "SME Recruitment". Prometric. Retrieved May 2, 2020. ^ Don Clark (February 21, 1999). "Subject Matter Experts (SME)". ^ a b "ASTM E2500 - 13: Standard Guide for Specification, Design, and Verification of Pharmaceutical and Biopharmaceutical Manufacturing Systems and Equipment". 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Further reading Maintenance of KBS's by Domain Experts, Bultman, Kuipers, Harmelen (2005) Retrieved from " Gary Fornshell, Extension Educator/Aquaculture, University of Idaho Flow-through tilapia farm near Boise, Idaho (photo courtesy of Gary Fornshell, University of Idaho). A raceway in its simplest form is just a flume for carrying water. Raceways for fish culture are tanks which are relatively shallow and rely on a high water flow in proportion to their volume in order to sustain aquatic life. Flow-through fish culture systems pass water through the systems once, provide waste treatment as required, and then discharge the water rather than treating and recirculating it. For successful aquaculture, the inflowing water must be within the temperature tolerance of the species being cultured and should match the optimal temperature for the target species as closely as possible. Oxygen is also provided by the incoming water and is removed by the fish as the water progresses down the raceway. In most raceway systems, dissolved oxygen is replenished by allowing the water to fall into subsequent tanks within the raceway. Dissolved metabolites from animals in the system are carried out in the effluent, while settleable particulate wastes can be captured by settling or less frequently by other means of filtration. Depending on the water chemistry, the depletion of oxygen and the accumulation of ammonia, carbon dioxide, or fine particulates can eventually become limiting to fish production within the system. No natural foods are generated in these systems, and nutritionally complete diets are an essential requirement for successful raceway aquaculture. Flow-through aquaculture systems require water exchange to maintain suitable water quality for fish production and rely on water flow for the collection and removal of metabolic wastes. Water for flow-through facilities is usually diverted from streams, springs, or artesian wells to flow through the farm by gravity. Water pumped from wells or other sources is more expensive and is seldom used. Water diverted from springs or surface sources for flow-through aquaculture is regulated by various public agencies, depending on the specific water laws of each state. Diversion of surface water is considered a non-consumptive use, although pumping groundwater from a well is considered a consumptive use in some states. The discharge of a high-volume, dilute effluent from flow-through aquaculture facilities greatly limits the treatment options available to producers from both technological and economic perspectives. Flow-through systems are the most commonly used aquaculture production systems for the culture of rainbow trout Oncorhynchus mykiss and other salmonids in the United States. Other coldwater fish species produced in flow-through systems include brook trout Salvelinus fontinalis and brown trout Salmo trutta. Flow-through systems are used for production of freshwater stages of salmon. Flow-through systems are also used on a limited scale for the production of warmwater fish such as catfish Ictalurus spp. and tilapia Oreochromis spp. Recently, flow-through systems have been used to produce coolwater species such as yellow perch Perca flavescens, hybrid striped bass Morone spp., and several species of sturgeon Acipenser spp. Flow-through systems include linear earthen and concrete raceways and tanks constructed from other materials. Concrete raceways are the most common. Circular rearing tanks are also used in flow-through systems, most commonly for broodstock production. The typical raceway production system consists of a tank (rearing unit) or a series of rectangular tanks with water flow along the long axis. In an ideal raceway, water flow will approximate plug flow with uniform water velocity across the tank cross section. However, friction losses at the tank-water and air-water boundary layers will cause water velocities to vary across the width and depth of the raceway. Greatest water velocities are at mid-depth, with slightly reduced velocities at the air-water interface and greatly reduced velocities along the raceway bottom. A defining characteristic of linear-pass raceways is a water quality gradient from the inflow to the outflow of the rearing unit during production, with best water quality at the inflow and deteriorating water quality along the length of the raceway as water flows toward the outlet. Circular rearing units are more thoroughly mixed and have relatively uniform environmental conditions throughout the tank. Compared to ponds, raceways have several advantages. Per unit of space, raceway production is much higher. Raceways also offer a much greater ability to observe the fish. This can make feeding more efficient, and disease problems are easier to detect and at earlier stages. If disease signs are observed, disease treatments in raceways are easier to apply and require fewer chemicals than a similar number of fish in a pond (due to the higher density in the raceway). Raceways also allow closer monitoring of growth and mortality and better inventory estimates than ponds. Management inputs such as size grading are much more practicable in raceways than they are in ponds, and harvesting is also easier. The disadvantages of raceways are primarily related to their need for large constant flows of consistent, high-quality water. Since such resources are not common, locating and securing a proper water supply is a major consideration. Also, commercial viability often requires that the water gravity flows through a series of raceways before it is released. This adds a requirement for an elevation of the water source and suitable topography for the gravity flow between raceways. Another limitation compared to ponds is the release of effluent. While ponds largely process wastes within the culture systems, raceways, with their low retention times, do not. Effluent releases from raceways are a larger consideration than they are for ponds. Raceway Publications Raceway Websites Manual of Running Water Fish Culture Raceway Culture for Freshwater Species

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