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Choosing an Integrated Greenhouse Control System

Unless you have an intimate knowledge of computer control systems, it's easy to get lost in technical specifications. We suggest you concentrate instead on performance specifications. What exactly do you expect the system to do? Try to list all the things that you want controlled and measured in each part of your operation. If you can, provide a sketch showing the physical layout of your growing zones and mechanical rooms showing where all the equipment is located.

Study and compare the features and limitations of the available systems and make sure that you and your operation will actually benefit from the level of control provided. In selecting a vendor, don't be in a rush. Check references and talk with other growers.

Look for a system designed for greenhouse control and greenhouse conditions, and a vendor with greenhouse control experience. A greenhouse is not the same as a warehouse or an office building. It has a far more complex climate and changes happen much faster. Other industrial control systems may claim to be capable of greenhouse control, but if they can't supply the specialized programs tailored to greenhouse equipment operation such as thermal curtains, CO₂, irrigation, nutrient monitoring, etc., they are of limited use.

Ask the manufacturer or dealer how they tackle environmental control problems. Many advanced integrated control systems use 'feed-forward' control intelligence to predict the level of control response based upon changing conditions. They do this by looking at current conditions and reacting to changes that will result in errors if not corrected. In many situations, this works better than simpler feedback strategies where the controller waits for a deviation to occur before making changes. One of the most useful applications of feed forward control is in energy balance equations. Good integrated control systems accurately predict the energy balance requirements for a climate, and preemptively manipulate the heating/cooling to maintain this balance.

Make sure the company provides good after-sales service. If you've ever bought a home computer from a store that doesn't service (or even understand!) their products, you'll know what we mean.

Finally, ask about flexibility. Unless you expect to be growing the same crops in the same way forever, you'll need the option to change the way you manage your equipment. Make sure the system can expand and grow as you do. Find out what it's going to cost to make future changes and upgrades to your system. Again, references and advice from other growers will help you here.

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