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Type of Coffee seedlings

Table 1. Recommended CWD-r Lines

CWD-r Line	Year of Release	Major Attributes
KR1 (NARO-Kituza Robusta 1)	2009	Yield 2,200kg/ha/cc/year; resistant to leaf rust, tolerant to RBD resistant to CWD, has big beans, good cup quality
KR2 (NARO-Kituza Robusta 2)	2009	Yield 2,600kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR3 (NARO-Kituza Robusta 3)	2009	Yield 4,900kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR4 (NARO-Kituza Robusta 4)	2009	Yield 2,300kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR5 (NARO-Kituza Robusta 5)	2009	Yield 2,900kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR6 (NARO-Kituza Robusta 6)	2009	Yield 2,600kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR7 (NARO-Kituza Robusta 7)	2009	Yield 3,000kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality

KR8 (NARO-Kituza Robusta 8)	2017	Yield 3,100kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR9 (NARO-Kituza Robusta 9)	2017	Yield 3,900kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality
KR10 (NARO-Kituza Robusta 10)	2017	Yield 4,800kg/ha/cc/year; resistant to leaf rust, tolerant to RBD, resistant to CWD, has big beans, good cup quality

Advantages & Disadvantage of each type of Coffee Seedling

Clonal Coffee Seedlings

Advantages:

Uniformity:

Clonal seedlings are genetically identical, ensuring uniform growth, yield, and quality across the plantation. This consistency is beneficial for large-scale farming and market predictability.

Disease Resistance:

Clonal varieties can be selected for specific traits, including resistance to diseases and pests, which can lead to reduced crop losses and lower pesticide use.

Early Maturity:

Many clonal varieties are bred for early fruiting, allowing farmers to achieve quicker returns on their investment compared to traditional seedlings.

Higher Yields:

Clonal seedlings are often selected for their high yield potential, which can significantly enhance productivity and profitability for farmers.

Disadvantages:

Genetic Vulnerability:

The lack of genetic diversity in clonal populations can make them more susceptible to widespread disease outbreaks or environmental changes.

Initial Cost:

The cost of producing and purchasing clonal seedlings can be higher due to the advanced propagation techniques required.

Limited Adaptability:

Clonal varieties may not perform well in all environments, particularly if they are bred for specific conditions that differ from local growing environments.

Dependency on Nursery Supply:

Farmers may become reliant on nurseries for clonal seedlings, which can be a disadvantage if supply issues arise.

Elite Coffee Seedlings**Advantages:****Superior Quality:**

Elite seedlings are often selected from the best-performing plants for traits such as flavour, aroma, and overall quality, leading to high-quality coffee production.

Genetic Diversity:

Elite varieties often come from a broader genetic base than clonal varieties, providing better resilience to diseases and environmental stresses.

Adaptability:

Many elite seedlings are bred to adapt to a range of growing conditions, making them suitable for diverse environments across different regions.

Long-Term Viability:

The genetic diversity inherent in elite seedlings can contribute to long-term sustainability in coffee farming, as they may be better able to withstand changing climate conditions.

Disadvantages:

Variable Performance:

Unlike clonal seedlings, elite seedlings may show variability in growth and yield due to their genetic diversity, which can lead to inconsistent production levels.

Longer Maturity Time:

Elite varieties may take longer to mature and bear fruit compared to some clonal varieties, delaying returns for farmers.

Management Complexity:

Growing elite seedlings may require more careful management practices to optimize their potential, including specific soil and nutrient management strategies.

Cost Considerations:

While elite seedlings may not always be as expensive as clonal ones, the initial investment in quality seeds and the potential need for additional inputs can still be significant.

Arabica Coffee Seedlings

Advantages:

Flavour Profile:

Arabica coffee is known for its mild, aromatic flavour and complex acidity, making it highly sought after in specialty coffee markets.

Higher Market Value:

Due to its superior taste, Arabica beans typically fetch a higher price on the market compared to Robusta, benefiting farmers economically.

Lower Caffeine Content:

Arabica beans contain less caffeine (about 1-1.5%) than Robusta, which can appeal to consumers who prefer a milder coffee experience.

Disease Resistance:

Certain Arabica varieties have been bred for resistance to specific diseases, such as coffee leaf rust, which can help reduce crop losses.

Disadvantages:

Growing Conditions:

Arabica requires specific growing conditions, including higher altitudes (1,200 to 2,200 meters) and cooler temperatures, which may limit suitable growing areas.

Sensitivity to Pests:

Arabica plants are generally more susceptible to pests and diseases compared to Robusta, requiring careful management and potentially more inputs.

Lower Yield:

Arabica plants tend to produce lower yields compared to Robusta plants, which can impact overall productivity for farmers.

Higher Maintenance:

The growing of Arabica often requires more intensive care and management practices, including pruning and shade management.

Robusta Coffee Seedlings

Advantages:

Higher Caffeine Content:

Robusta beans contain higher levels of caffeine (about 2-2.7%), which contributes to a stronger flavour and makes them more resilient to pests.

Greater Yield:

Robusta plants typically produce higher yields than Arabica plants, making them more economically viable for many farmers.

Hardiness:

Robusta coffee is more resistant to adverse growing conditions, such as heat and drought, and can be grown at lower altitudes (below 1,200 meters).

Pest Resistance:

The higher caffeine content in Robusta beans also provides a natural defence against certain pests, reducing the need for chemical interventions.

Disadvantages:**Flavour Profile:**

Robusta coffee is often considered inferior in flavour compared to Arabica, with a stronger, more bitter taste and less complexity, which can limit its market appeal.

Lower Market Value:

Due to its perceived lower quality, Robusta beans usually sell for a lower price than Arabica beans, potentially affecting farmer income.

Limited Specialty Market:

The specialty coffee market predominantly favors Arabica, which can restrict opportunities for Robusta producers in this segment.

Less Acidity:

The lower acidity in Robusta coffee can result in a less vibrant flavour profile, which may not appeal to all consumers.