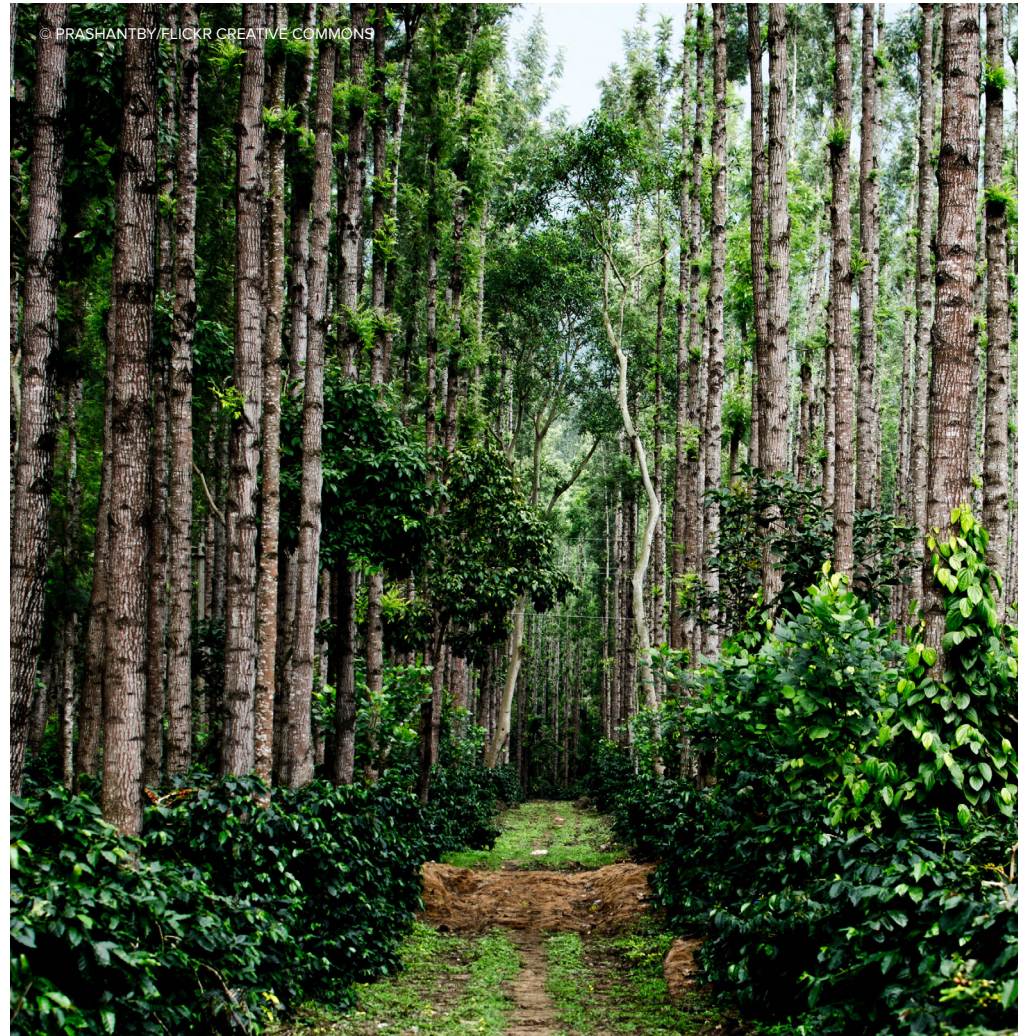


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POCKET GUIDE

RENOVATION + REHABILITATION



**SUSTAINABLE
COFFEE
CHALLENGE**

PEOPLE NEED COFFEE TO THRIVE, AND COFFEE NEEDS PEOPLE AND NATURE TO THRIVE

R&R 101

Coffee farmers rely on productive and resilient trees to maintain their place as growers in a competitive market - and to sustain their livelihoods. However, many coffee-growing regions are struggling to maintain the quality and supply of their coffee in the face of aging trees, diseases like coffee rust, and low market prices that make reinvesting challenging. Therefore, supporting coffee farm renovation and rehabilitation has become a critical

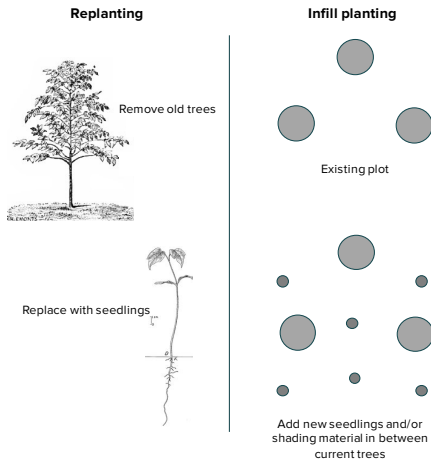
element in ensuring the longevity of the industry. To get started it's important to define what we mean by 'renovation' and 'rehabilitation' in the coffee context.

Renovation – the removal of old trees and addition of new material - and **Rehabilitation** - stumping or rejuvenation pruning of existing trees - can be undertaken to increase the production of a farming area.

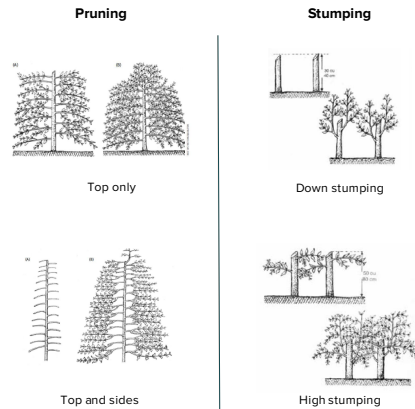
RENOVATION



Renovation



Rehabilitation



REHABILITATION



CHOOSING RENOVATION VS REHABILITATION:

What is the most appropriate approach on a farm? Decision makers should first understand whether R&R is needed, and then which option is the most appropriate.

Rehabilitation should be the first choice in many contexts given:

- The smaller and shorter financing need (and associated investment horizon)
- The smaller risk of implementation failure
- The benefits of old trees (bigger and stronger roots that are more drought resistant than young trees) For example, if trees are merely old but in otherwise good condition, it may be most appropriate to rehabilitate them

But some situations require renovation:

- Trees may be irreversibly affected by diseases to the point where renovation is the only remaining option
- Superior yields and income associated with new varieties may warrant the renovation investment (and associated implementation risk)
- Climate models may suggest that there will be significant change to suitability for existing varieties, even when good agricultural practices are applied

And there are also scenarios where a mix of renovation and rehabilitation is the best way forward:- Some parts of the plot may be completely damaged and thus require renovation, whereas others areas of the plot might require rehabilitation only.

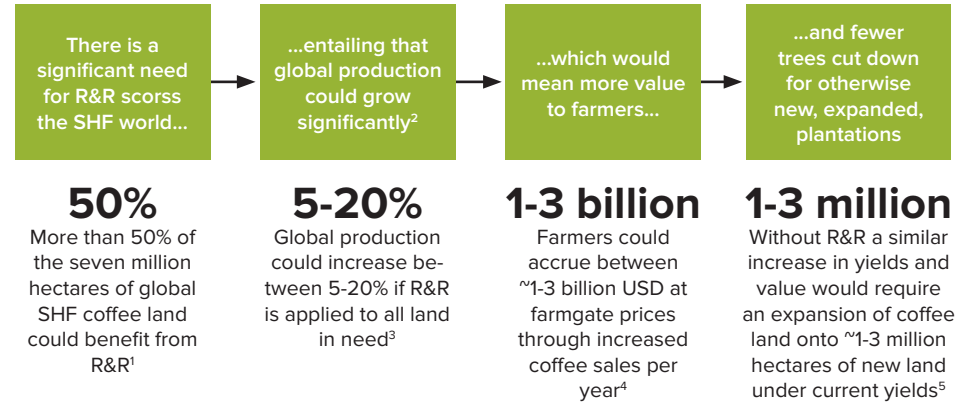


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HOW SERIOUS IS THE NEED?

So far global supply has met increasing demand, but deteriorating tree stock, particularly on smallholder farms (SFH), raises questions as to whether supply can keep up in the future.

Global need for smallholder R&R is 4 million hectares: equivalent to the entire harvested area of Brazil, Vietnam, Colombia and Ethiopia.



OLD TREE AGE

With time trees produce less coffee. At some point they can no longer be rehabilitated back to profitable yields and therefore need to be replanted¹.



CLIMATE CHANGE

Increasing temperatures can demand replanting with drought/disease-resistant varieties, or varieties that are particularly suited to yield in certain climatic conditions.



DISEASES AND PESTS

Some mild diseases and pests can be overcome without replanting (e.g. by having well-managed trees), whereas more severe outbreaks can necessitate replanting (with new resistant varieties).



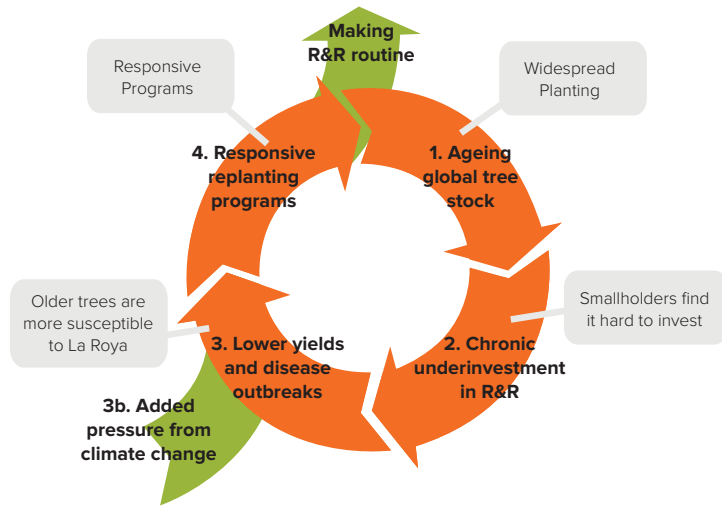
POOR AGRICULTURAL PRACTICES

Lead to the deterioration of trees to the point where they require R&R. It is important that R&R is always accompanied by GAP to prevent the same decline from happening again.

BUT WHY IS R&R NEEDED?

Coffee production suffers from aging trees, diseases and pest outbreaks and poor agricultural practices, which decreases household incomes for millions of coffee farmers. As climate change intensifies, the negative effects on coffee production are becoming more pronounced. Increasing temperatures and rainfall variability reduce suitable areas for coffee production and yields are decreasing.

Vicious Cycle of Underinvestment in R&R



BREAKING THE CYCLE

To get out of the cycle of underinvestment in replanting, we need to get over the initial hump of latent demand for R&R and make it much more routine and gradual; a preventative rather than a responsive investment.

Ideally, farmers should be gradually incentivized and trained to reinvest in their coffee land as part of standard operating procedures. This will likely require starting with the more simple and cheaper investments first, moving to more complex renovation investments next, and finally, farmers continuously reinvesting in their land.

1. AGRONOMIC ANALYSIS
A natural first 'investment' step would be to conduct agronomic analysis

2. IMPROVE AGRICULTURAL PRACTICES
The farmers can begin to improve their agricultural practices to optimize their yields

3. GRADUALLY REHABILITATE
And at some point, rehabilitation will be needed regardless of practices

4. GRADUALLY RENOVATE
And finally, renovation is relevant, before starting the cycle over again

WHAT ARE THE BENEFITS?

In addition to increasing yield per tree, implementing R&R on existing areas can ultimately avoid the expansion of coffee's spatial footprint to meet growing demand. Furthermore, renovation with new disease resistant and climate tolerant varieties can help farmers adapt to changing climate.

Of course, determining the best technique to apply comes down to the particular

conditions of the farm and farm owner. Considerations should include:

- the reason for the declining yield
- local availability of inputs
- access to technical support
- current market price and farmer finances, among other circumstances.

WHAT ARE THE CRITICAL PIECES OF A PROGRAM?

Successful R&R programs generally contain three elements.

1. Inputs: Includes planting material (for renovation), insetting trees (for shaded coffee), and other inputs such as nutrition, tools, and herbicide

2. Knowledge: Includes technical assistance on good agricultural practices (GAP) and management of long-term loans and R&R programs

3. Finance: includes financing (loans or

grants) during the 'valley of death' to cover project components, and, sometimes, broader investments in coffee sector

It is important to note that though the key elements ring true for both renovation and rehabilitation, the sub-activities under each differ. For example, quality inputs are critical to include in renovation packages. Rehabilitation requires fewer inputs than renovation and none of the inputs are critical, though finance is needed in most cases.

Key Elements of Successful R&R Projects

