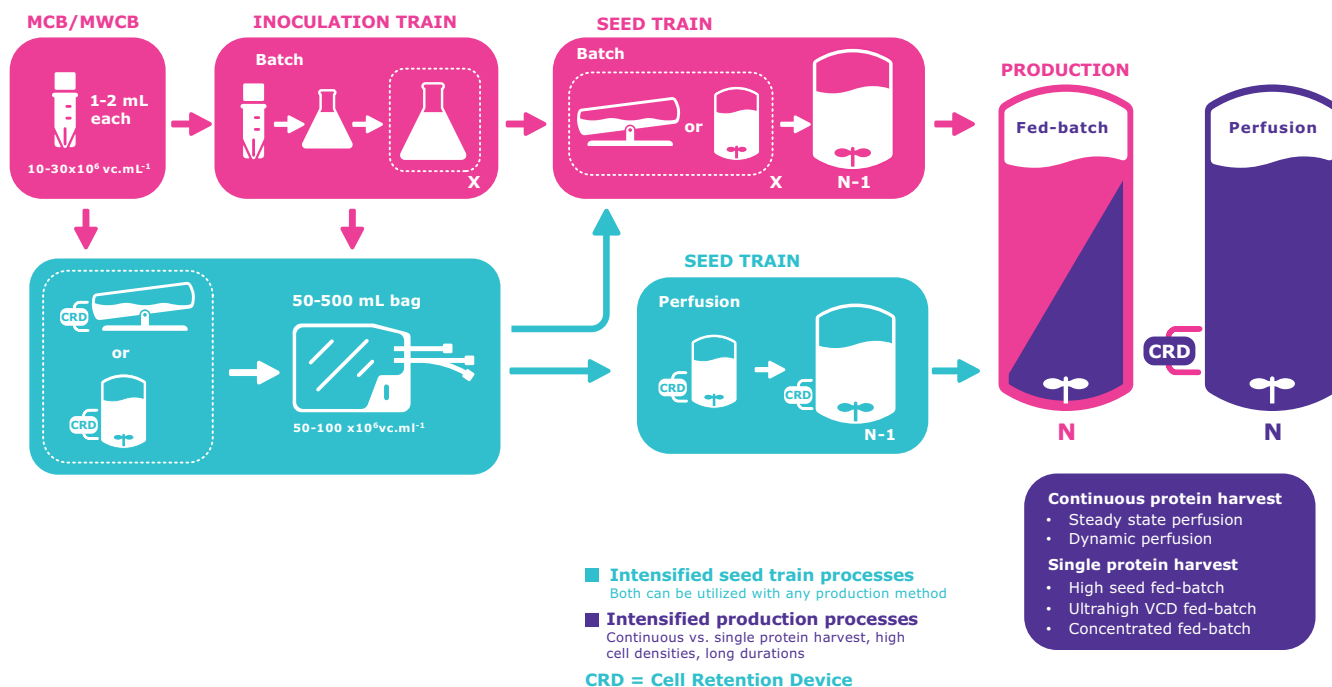




Driving value towards the evolution of upstream processes

Case Study: Intensified Seed Train

Perfusion involves the constant feeding of fresh media and removal of spent media and product while retaining high numbers of viable cells within the bioreactor vessel. With the increased pressure to drive down manufacturing costs and to improve facility flexibility, there is a need to implement new perfusion-based approaches. Ultra high-density cell culture processes such as concentrated fed-batch and steady-state perfusion allow for high density cell-cultures in both the seed train and production bioreactors. The use of perfusion bioreactors leads to a better control of process conditions and an increase in the quality of proteins.



An Intensified Seed Train allows to:

- Compress the seed train
- Maximize bioreactor utilization
- Maximize facility capacity and efficiency. For example, the same amount of protein can be produced in a 2,000 liter perfused bioreactor compared to a 15,000 liter fed-batch bioreactor
- Reduce the size and number of bioreactors
- Increase facility flexibility with single-use technologies
- Reduce the overall upstream footprint
- Improve protein quality
- Increase viable cell density
- Facilitate the downstream processes by providing cleaner harvests

14% decrease
In COGS

28% increase
In plant throughput*

*at 2000L scale, 1 seed train, 1 production bioreactor, 1 DSP suite

For additional information, please visit
EMDMillipore.com/BioContinuum

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